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THE BACTERIOLOGY OF ACUTE RESPIRATORY INFECTIONS IN CHILDREN AS DETERMINED BY CULTURES FROM THE BRONCHIAL SECRETION

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In December, 1908, an investigation was begun in the Babies' Hospital to determine what information could be gained in respiratory infections from a study of cultures of bronchial secretions. For the first season interest centered on the *Bacillus influenzæ* to gain, if possible, some definite information as to its frequency and importance in respiratory infections, and also to see what value, if any, could be attached to sputum cultures in the diagnosis of influenza. The first season's observations extended from December, 1908, to June, 1909, and were made on 250 patients and 40 nurses in the Babies' Hospital. The method pursued and results obtained have been set forth in a previous paper.[1] They indicated that the *B. influenzæ* played a very important part in respiratory infections, especially in winter and early spring, being second in importance only to the pneumococcus. Our observations, however, showed that it played no part in these infections during the warm months, for it disappeared entirely toward the end of May, as soon as permanent warm weather came, and it was not found again until about the middle of October. Pneumococcus infections, on the contrary, persisted throughout the summer months.

During the past season the scope of the study has been somewhat enlarged and has included observations on the occurrence in the secretions of the respiratory tract, both in healthy and diseased persons, of the pneumococcus, the *B. influenzæ*, the *Staphylococcus aureus* and the streptococcus. In our present report we are not especially concerned with the diphtheria bacillus, and it will be mentioned only casually, although it was noted when present. Nor has there been included in the tables of this paper a detailed report concerning the *Micrococcus catarrhalis* which was found in about two-thirds of the cultures made. Thus far we have not been inclined to consider its presence as significant or important.

During the past season, from the middle of September, 1909, to June 1, 1910, there have been made, from over 500 patients and 30 nurses and attendants, over 1,100 cultures from the secretions of the respiratory tract during life. There have been made, in addition, cultures from the lungs and heart's blood in 85 routine autopsies. It has been our custom to make a sputum culture from every patient admitted to the wards; at intervals to take cultures from all the inmates of the hospital—patients, physicians and nurses. In most of the acute respiratory cases, especially in the protracted ones, repeated cultures were made. Frequent cultures also were made in most of the febrile cases of obscure diagnosis.

The patients were inmates of the Babies' Hospital and for the most part under three years of age. In taking cultures, so far as possible, the bronchial secretion was secured. Control cultures were taken from the naso-pharynx, pharynx and nose in about forty-five cases to determine the variations. Anterior nasal and pharyngeal cultures often disagreed with the bronchial cultures, and hence were deemed rather unreliable as representing the nature of the respiratory infection. Results obtained from the naso-pharyngeal cultures in the main corresponded closely with the bronchial cultures, but were much more difficult to obtain. To avoid contamination it was found necessary, if there was much mucus present, first to cleanse the mouth and sometimes even the pharynx. A curved swab was then passed behind the soft palate into the nasopharynx.

The method of taking the bronchial cultures I have already described. It consists in inducing a hard cough by pharyngeal irritation and catching on a swab the secretion excited by the cough. The cultures may, therefore, be considered to represent fairly accurately the bronchial flora rather than the pharyngeal flora.

The results of the clinical cultures made from Sept. 20, 1909, to May 1, 1910, are shown in Table 1.

The patients are divided into four groups:

TABLE 1.—LIFE CULTURES (BRONCHIAL), SEPT. 20, 1909 –JUNE 1, 1910.

	Pneumonia. 124 Patients, 333 Cultures.		*Bronchitis, etc.* 133 Patients, 354 Cultures.		*Pulmonary Tuberculosis.* 23 Patients, 44 Cultures.		*Non-Respiratory.* 254 Persons (30 nurses), 374 Cultures.		*Acute Otitis, Paracentesis.* 57 Patients, 86 Ears.	
	Patients.	Cultures.	Patients.	Cultures.	Patients.	Cultures.	Patients.	Cultures	Patients.	Cultures.
B. influenzæ	47	93	63	137	6	8	49	77	4	6
Pneumococcus	94	200	105	231	16	26	133	185	13	15
Streptococcus	63	120	71	109	12	16	130	153	15	17
Staphylococcus aureus.	116	257	117	266	16	34	216	300	44	57

Total, 1,115 cultures; 534 persons (30 nurses). [B. Diphtheriæ = 3].

1. Holt, L. Emmett: The Bacteriology of Acute Infections of the Respiratory Tract in Children, with Especial Reference to Influenza, Arch. Int. Med., 1910, v, 449.

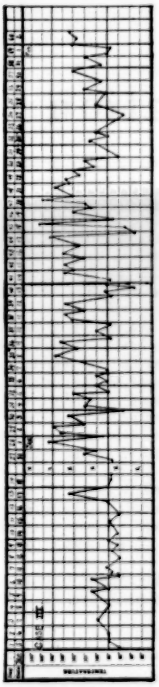

Chart 3.—Temperature in Case 3, influenza, bronchopneumonia and otitis.

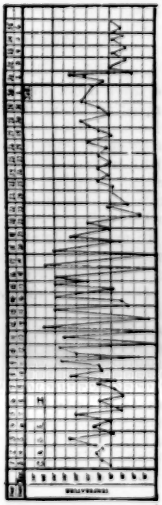

Chart 1.—Temperature in Case 1, influenza, bronchitis, double otitis and bronchopneumonia.

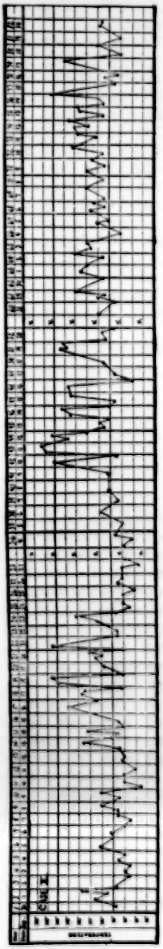

Chart 2.—Temperature in Case 2, influenza and slight bronchitis.

1. Those with pneumonia. Most of the pneumonias were of the acute primary type, bronchopneumonia being much more common than the lobar variety. Only a few of the pneumonias were secondary to other infections. A small number were terminal infections in children suffering from marasmus.

2. Those with bronchitis and other respiratory infections, laryngitis, tracheitis, etc. The cases included in this group were for the most part rather mild infections.

3. Those with pulmonary tuberculosis.

4. Those with non-respiratory diseases. These were surgical patients, children admitted for disordered nutrition (feeding cases) or other chronic diseases, or healthy infants. In this group are included thirty nurses and attendants.

What a mixed infection the acute pneumonia of early life is, this table shows in a striking manner.

Pure cultures were practically never seen, although a single dominant type of infection was present in very many cases. The table shows in the different groups the frequency with which the different organisms were found in the cultures, and also the number of patients in which they occurred.

In the first group, the pneumonias, and, in fact, in all the groups, the predominance of the pneumococcus and *Staphylococcus aureus* will be noted. The percentage of cases showing the *B. influenzæ* falls considerably below that observed in the previous season. The streptococcus was rarely the predominant organism found, although present, usually in small numbers, in over one-half the patients and about one-third the cultures taken. The probable explanation of this small percentage is that few of the pneumonias were secondary to such infections as measles, diphtheria, etc.

That the character of the infection in bronchitis is essentially the same as that in pneumonia is not generally appreciated. In the second group of mild respiratory infections, however, it will be noted that the relative frequency of the different organisms found in cultures is about the same as in the first group, except that the percentage of influenza cases is higher. In the third group, the tuberculous cases, the pneumococcus and *Staphylococcus aureus* still predominate. In the fourth group, non-respiratory cases, it is not surprising to find the *Staphylococcus aureus* in about 85 per cent. of the patients and of the cultures, and the streptococcus in about one-half this number. It is, however, rather surprising to find that 52 per cent. of the patients showed the pneumococcus, but it should be remembered that the season was the winter and spring and the patients were hospital inmates. The proportion of influenza cases falls the lowest in this of any of the four clinical groups; but it was found in 19 per cent. of the patients.

I have appended to the table the results of cultures made from 57 cases of acute otitis after fresh paracentesis, as otitis is so frequently associated with acute infections of the respiratory tract in children. It is noteworthy that while about one-half the patients with otitis showed the *B. influenzæ* in throat cultures, in only four patients (both ears in two of them) did the cultures made after paracentesis show the *B. influenzæ;* the predominant organism was the *Staphylococcus aureus.*

It is desirable, and we hoped it might be possible, to connect certain clinical symptoms and definite cultural findings. In many cases with experience we were able to predict the predominant type of infection, but in very many others it was impossible. The great difficulty apparently lies in the mixed character of the infection, which has already been emphasized, so that the clinical picture, like the cultural findings, was usually of a mixed type. In one group, for instance, a predominant influenza infection, in another a predominant pneumococcus infection, and in others a predominant staphylococcus infection; but these were seen in all possible combinations. There

were many variations in the clinical course of the infections which could be explained by the cultures. In fact, it became evident that a very extended experience will be required before this can be done with even an approach of accuracy.

Very few examples were seen of what we are accustomed to regard clinically as acute pneumococcus infection of the lung—viz., cases with an abrupt rise in the temperature followed by a steadily high range and a critical fall. The pneumonia cases were for the most part atypical both in course and duration. It is my own belief that it is the other organisms present, especially the *Staphylococcus aureus* and the *B. influenzæ*, which are largely responsible for these variations.

In our series of cases we were unable to see any definite modification of the symptoms in those which showed the streptococcus in the cultures, except in a few, which were of exceptional severity.

The *B. influenzæ* was often present in small numbers, when it did not appear to have any effect on the symptoms, but many of the most irregular and puzzling cases were associated with its presence. A study of this organism in quite a large series of cases led to the conclusion that when present in numbers it did produce quite definite symptoms. We came to recognize several fairly distinct clinical types associated with influenza infection:

1. Cases with pneumonia often small in extent, sometimes with signs only of bronchitis, but with very wide and irregular fluctuations of temperature which occurred without any apparent cause.

2. Very protracted cases with exacerbations and remissions.

3. Recurring cases of pneumonia in which a succession of attacks followed each other, separated by an interval of days or weeks with partial or apparently complete recovery.

4. Cases showing constitutional symptoms of only a mild infection judging by the pulse, the nervous symptoms and the amount of general prostration, but with quite extraordinary fluctuations of temperature which was usually high and very irregular in its course. A small area of pneumonic consolidation sometimes appeared late in these cases. However, there were in many instances no evidences of consolidation and only râles in the chest; in some cases these were few and inconstant.

The presence of the *B. influenzæ* was more frequently associated with symptoms of the lower than with those of the upper respiratory tract. In general, influenza infections were characterized by mild general symptoms, by very irregular physical signs and by wide and irregular fluctuations of temperature.

ILLUSTRATIVE CASES

In the following case-reports examples are given of what we have been accustomed to call influenza infections, together with the evidence on which the diagnosis of influenza rested. The charts have been selected from a great number and are fairly characteristic of the clinical conditions met with.

CASE 1.—*Influenza; bronchitis; double otitis; later bronchopneumonia; death; autopsy.* The patient was a delicate child 9½ months old, admitted December 3 with a second attack of acute bronchitis; previously ill for one week. The entire family at home were reported suffering from coughs and colds at the time. On examination there was found moderate prostration and scattered râles throughout the chest. Three days later, on December 6, double otitis developed and paracentesis was done on both ears. The operation was repeated on both ears on December 13 and again on the left ear on December 15 and 27.

The râles in the chest persisted, but not until December 21 were there any signs of consolidation of the lung and then only over a small area. These signs never cleared up; the prostration steadily increased and with failing nutrition the child died on January 16 of exhaustion.

During the course of the illness the principal interest attached to the wide fluctuations of temperature, chiefly between December 10 and 20. The daily excursion was at times as much as 10 degrees. There were no chills. Such a temperature occurring in a case of otitis after both ears had been opened and with a constant tendency to close led the surgeon to suspect sinus thrombosis or mastoiditis. Further operation was opposed, partly on account of the child's poor general condition, but also for the reason that as the throat cultures showed the *B. influenzæ* it was thought that this might be the explanation of the unusual temperature variations.

At autopsy a very small amount of bronchopneumonia was found. The cultures from the lung showed the *B. influenzæ* and the pneumococcus. The mastoid and the sinus were carefully examined by the aural surgeon himself and no trace of disease could be discovered.

CASE 2.—*Influenza; slight bronchitis.* This child was under

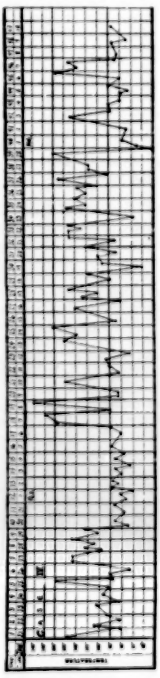

Chart 4.—Temperature in Case 4, unresolved pneumonia and influenza.

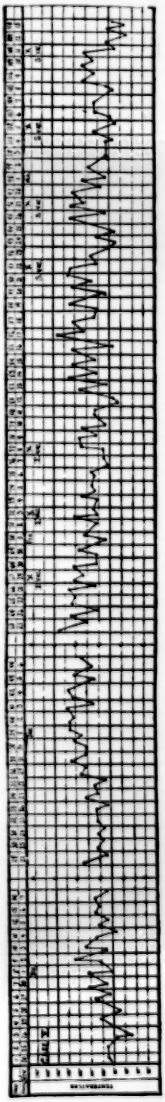

Chart 5.—Temperature in Case 5, prolonged bronchopneumonia and otitis.

observation for three and a half months and in spite of the recurring attacks of fever he was never very sick and gained steadily in weight, on the average about a pound a month. He was a delicate infant, 9 months old, weighing on admission but 10 pounds. He was brought to the hospital on account of poor nutrition and a slight cough. A few coarse scattered râles in the chest could be heard most of the time during his stay but there were no fine râles and no signs of consolidation were ever present.

During the first period of fever, from October 13 to 23, the digestion was not particularly disturbed; and the pulmonary signs did not increase. No cultures were taken at this time. There followed then an interval of nearly two weeks with normal temperature and no signs of illness except an occasional slight cough.

The second rise of temperature came on without apparent cause, with no obvious disturbance of digestion, and no new signs in the chest. No sufficient explanation of this temperature could be found, and as during the previous attack the patient did not seem very sick even when the temperature was as high as 105 F. The urine was normal, and also the ears though frequently examined. No malarial organisms could be found in the blood. The Widal test was negative and the spleen was normal. The tuberculin test was negative. The leukocyte count was low, the average of several examinations being 7,000; the polymorphonuclear percentage ranged from 31 to 36.6. Influenza was suspected but repeated cultures from the bronchial secretion at this time failed to reveal this organism. The temperature subsided before any satisfactory diagnosis could be made.

After a normal interval of about a week a third period of temperature began which continued nearly three weeks; although it was not quite so high as the previous attack, it was of the same irregular type. During this febrile period the sputum cultures showed the *B. influenzæ* constantly. There were no more general or local symptoms of illness than during the previous periods of fever. A positive agglutination reaction was obtained with the patient's own influenza organisms. I believe that all the febrile attacks were due to the influenza and that the organisms were missed in the early cultures.

Four injections, 75 millions each, of a polyvalent, heterogenous influenza vaccine were given to this patient on January 7, 13, 20 and 26. The temperature did not rise again and the subsequent course suggests that some benefit resulted from the vaccines, but this cannot be definitely affirmed. As in the previous case a disposition of the temperature to go to subnormal after the marked fall is noteworthy.

Case 3.—*Influenza; bronchopneumonia; otitis; death; autopsy.* The patient was a delicate child, 7 months old, admitted December 5 on account of its poor nutrition and cough. No symptoms of acute illness were present. During the first two weeks a slight rise of temperature was noted occasionally as shown in the chart. The temperature was then normal until December 31. With this acute rise in the fever the symptoms of bronchopneumonia developed with a small consolidation in the right lung. There was very little change in the signs or the symptoms for the next ten days. Otitis then developed and both drums were opened on January 12. Three days after this a small spot of pneumonia was discovered in the opposite lung. The signs in the lungs did not increase with the high temperature nor did they diminish with the fall in the temperature which succeeded. The child steadily lost strength, however, and died from exhaustion.

The autopsy showed an ordinary bronchopneumonia of moderate extent; no other lesions of importance. The bronchial cultures during life repeatedly showed the *B. influenzæ*. Cultures from the lungs at autopsy showed the *B. influenzæ* but no pneumococci.

Case 4.—*Unresolved pneumonia; influenza.* The patient was a boy 2 years old, admitted January 21 with a history of two months' illness with pulmonary symptoms and a diagnosis of pneumonia. Temperature on admission was 103 F. Physical signs pointed to a partial consolidation in the right upper lobe behind. Leukocytosis of 40,000; polymorphonuclear percentage, 79. By January 31 nearly all the signs in the chest had disappeared; leukocytosis 14,000.

The patient continued to improve until February 7, there being present in the chest during this time only occasional coarse râles, bronchovesicular respiration and slight dulness over the area previously noted. Following the rise of temperature on February 7 an increase in the signs in the chest took place. More râles were present; they were of finer quality and over a larger area, but only on the right side. There was no definite consolidation. The leukocyte count ranged from 20,000 to 28,000 during the next few days. This exacerbation was of brief duration and after four or five days the only signs in the chest were those which had been noted before the rise in the temperature. During the following three weeks the irregular fluctuations in temperature shown in the chart occurred with no special change in the local or general symptoms. The child coughed moderately but did not appear very sick at any time.

Repeated sputum cultures showed the *B. influenzæ*. There was no temperature after that last recorded. Careful and repeated examinations were made in this case of the urine, the ears and the blood, without revealing any other cause for the temperature. The inference seemed a fair one that the temperature was due to the influenza infection.

I think that the cultures which we have made go far toward establishing the fact that the *B. influenzæ* plays a considerable rôle in the respiratory infections of young children. We have tried the use of influenza vaccines in about half a dozen cases without any very decisive results, but I feel that this is a subject demanding further investigation. Their use is indicated especially in the very protracted or in recurring cases of influenza infection. Such an infection, we have shown, may continue for three months, and may probably last a much longer period.

With reference to the precise influence of the streptococcus and *Staphylococcus aureus* on the symptoms and course of respiratory infections, I feel more hesitancy in expressing an opinion. The *Staphylococcus aureus*, I am convinced, plays a more important part in the bronchopneumonia and other respiratory infections of young children than has usually been accorded to it. We began our investigations with the view, which I believe is commonly held, that its presence was to be expected, not only in the sputum, but in autopsy cultures from the lungs, and that it was not significant. But a wider experience has led us to modify this opinion. When present in numbers the staphylococcus, I believe, modifies the symptoms of pneumococcus infections. In some cases it certainly seems to be the predominant organism. We have found this to be true of some cases characterized by temperature not very high, and with rather narrow fluctuations, and with constitutional symptoms of only moderate severity.

The following case, however, seems worth recording. It made a strong impression on all who followed it:

Case 5.—*Prolonged bronchopneumonia; otitis; cure (?) by staphylococcus vaccines.* This patient was a premature infant 7 weeks old, and its weight November 25 when the elevation of temperature began was only 3 pounds, 12 ounces. The temperature continued in this case for more than three and a half months. The complete chart is too long for reproduction but the temperature for the periods omitted was exactly like that which preceded and followed them.

The daily fluctuations were for the most part narrow, the usual range being 100 to 102.5 F.; it never touched 104 F. and very rarely went to the normal line. During the greater part of this time there were localized coarse and fine râles in the right lung behind. These signs persisted and from time to time were heard throughout both lungs. There were no signs of consolidation at any time. The infant had a moderate cough but never seemed very sick. The persistent physical signs and the temperature led to a suspicion of tuberculosis but the skin test was negative and no tubercle bacilli

could be found in the sputum. The blood showed a leukocytosis of from 12,000 to 16,000. The child's weight slowly increased to 5 pounds 14 ounces by March 13. On January 12 otitis developed and the left ear was opened; subsequently the right ear was affected and was opened January 20.

CULTURE CARD OF CASE 5

Date.	B. influenzæ.	Pneumococcus	Streptococcus	Staphylococcus aureus.	Source of Culture.
1/ 6	—	+	—	+	Bronchial.
1/ 8	—	+	—	+	Bronchial.
1/20	—	—	—	+	Right ear.
1/26	—	—	+	++	Bronchial.
1/27	++	—	—	++	Bronchial.
1/28	—	+	—	++	Nasopharynx.
1/28	+	+	—	++	Bronchial.
2/ 9	—	—	—	++	Pharyngeal.
2/16	—	—	+	+	Bronchial.
2/20	—	+	+	++	Bronchial.
2/28	—	—	—	+	Bronchial.

The culture card of this patient for January and February is reproduced in full and shows exactly the findings on the different days. As influenza vaccines were being used at this time in some other cases, and as the influenza bacillus was occasionally present in the cultures of this patient, they were first tried. Three injections of a heterogeneous influenza vaccine were administered on January 29, February 3 and 8; the first dose was 50 millions, the second and third 30 millions each. Although the temperature was not quite so regular in its course during and for a few days after these injections, no real benefit seemed to follow.

During February several quite large furuncles appeared over the chest and abdomen. This circumstance coupled with the persistence of great numbers of staphylococci in the sputum cultures led to the suspicion that the essential process in this patient might possibly be a staphylococcus infection. On February 22, 27 and March 5 and 11, injections were given of a staphylococcus vaccine from a stock culture, each dose being 30 millions. The effect on the temperature was immediate and striking, as is shown by the chart. After each injection there was a fall and after the last injection no further rise occurred; but what was quite as surprising, the long persisting signs in the chest quickly and permanently disappeared. From this time the gain in weight rapidly increased and the child was discharged quite well on April 25.

One hesitates to make any deductions from a single case, but the length of observation of this patient and the close study which was possible makes it worthy of the record. I cannot believe that cases of this kind are so very rare.

POST-MORTEM OBSERVATIONS

Turning now to the post-mortem findings, we have observations on 138 autopsies made during the fall, winter and spring months. I have included those of the season of 1908-1909, not previously published in detail. These autopsies were practically consecutive; cultures were invariably made unless the examination was hurried or partial. As a rule autopsies were made early, most of them within twelve hours and very many within six hours after death. All bodies were immediately placed on ice unless the weather was cold. Post-mortem changes do not, I believe, play an important part in the findings. Cultures were made from the part of the lung showing the most extensive disease and in every instance from both lungs. There was substantial agreement of the findings from the two lungs, so that it has not been thought important to separate them. The main facts are given in Tables 2 and 3.

It will be noted that of the 138 cases there were 76 of pneumonia, 20 of bronchitis, 29 of tuberculosis, and in only 13 was there no disease of the lungs. The small number with no pulmonary disease is accounted for by the fact that no summer autopsies are included.

In general the post-mortem findings correspond with the clinical findings by sputum cultures as indicating the type of infection. Mixed infections were seen in the great majority of the cases. The *B. influenzæ* was found in the lungs four times in pure cultures; the pneumococcus was found pure in six cases. In this connection I should like to mention one case in which at autopsy a pure culture of influenza was obtained from a serofibrinous pleural exudate, and another in which a pure growth of this organism was obtained from empyema pus drawn by aspiration in a patient who recovered. This patient's bronchial secretion gave also a positive influenza culture.

Omitting the staphylococcus, a single organism was found in but 13 of the 138 cases. The significance of the finding of the staphylococcus alone in 26 cases is somewhat doubtful.

Cultures from the heart's blood were made in 117 cases, in 71 of which there was no growth. The *B. influenzæ* was found but once, and then not alone; the pneumococcus in but 8 cases; in 5 of these alone. Only the streptococcus and staphylococcus were at all frequent, being found, respectively, in 22 and in 17 cases.

TABLE 2.—POST-MORTEM CULTURES

	Lungs, 138 Cases—Pneumonia, 76; Bronchitis, 20; Tuberculosis, 29; Non-Respiratory, 13.		Heart's Blood 117 Cases. (No growth in 71.)	
	Cases.	Alone.	Cases.	Alone.
B. influenzæ.....	37	4	1	0
Pneumococcus ...	53	6	8	5
Streptococcus ...	43	1	22	17
Staph. aureus....	86	26	17	14
B. diphtheriæ ...	12	2	2	1
Catarrhalis	7	0	0	0
Pyocyaneus	3	0	3	2
B. coli	1	0	2	1

TABLE 3.—POST-MORTEM CULTURES (138 CASES)

Growth from Lungs.	Pneumonia, 76 Cases.	Bronchitis, 20 Cases.	Pulmonary Tuberculosis, 29 Cases.	Non-Respiratory, 13 Cases.	Total.
B. influenzæ alone	2	2	0	0	4
Pneumococcus alone	4	1	0	1	6
Streptococcus alone ...	1	0	0	0	1
Staphylococcus aureus alone	8	6	8	4	26
B. influenzæ and pneumococcus	5	1	0	0	6
B. influenzæ and streptococcus	5	0	2	0	7
B. influenzæ and staphylococcus	7	1	2	0	10
Pneumococcus and streptococcus	1	0	1	0	2
Pneumococcus and staphylococcus	11	1	5	2	19
Pneumococcus and catarrhalis	5	0	0	0	5
Staphylococcus and streptococcus	10	1	7	3	*21

* The remaining 31 autopsies showed various other combinations of the above organisms, or of them with pyocyaneus, *B. diphtheriæ*, or *B. coli communis*, but not more than two cases of any one variety.

Cultures such as those which we have been making involve considerable labor. Are they of any practical value to the physician? My own belief, after an experience extending over two years, is that they are of great assistance in diagnosis, especially in influenza infections. In cases where the symptoms led us from our experience to suspect influenza we seldom failed to find the organism, usually in the first or second culture, but occasionally not until repeated cultures had been made. These give much more definite results than the search for tubercle bacilli in suspected cases.

The discovery of the *B. influenzæ* in sputum cultures in cases of obscure high temperature, in cases of recur-

ring bronchopneumonia, or pneumonia running an unusual course, or of high temperature persisting in cases of otitis in which the ears had been opened, or after surgical operations, of course does not establish the fact that the temperature is due to this infection; but when this organism is found repeatedly and in large numbers associated with such symptoms it is, in the winter and spring season at least, extremely probable.[2]

Further evidence that the presence of the *B. influenzæ* in the nasopharyngeal and bronchial secretion is significant is shown by the fact that of three recent cases of influenza meningitis which I have seen, the cultures showed in each case the influenza organism in the nasopharynx, and in two in which the examination was made they were also present in the bronchial secretion.

No one realizes more than I that a much more extended study and many series of observations must be made before it will be possible to establish relationships between bronchial or nasopharyngeal cultures and clinical symptoms in respiratory infections. The separation of the respiratory infections is admittedly difficult, but I believe it to be quite as desirable as in the case of intestinal infections. To what extent vaccines may be found useful it is impossible to say, but it is certain that any form of specific treatment must be based on a knowledge of the nature of the infection.

In conclusion, I desire to express my indebtedness to Dr. Martha Wollstein, pathologist of the Babies' Hospital, and to Dr. Josephine Hemenway, resident physician, for their invaluable assistance in the observations recorded in this paper.

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THE NEGRO AS A HEALTH PROBLEM*

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In the South, regardless of hair-splitting dictionary or legal definitions, it is customary to regard as negro any person who is known to have any negro blood in his veins; this despite the fact that the Supreme Court of Louisiana has lately handed down a decision restricting the term "negro" to those having a greater proportion of negro blood than would occur in an octoroon. This decision, however much it may be law, has not been the custom.

It may not be commonly known in the North that prior to the war it was the custom in the South among the better class of slave owners to give the very best care and attention to the slaves—to the house-servants as well as every other class of laborer generally. Of course, while due credit must be given to the humane motive at the bottom of this, it must be acknowledged that the economic consideration was also largely influential, as each negro, old, or young, possessed considerable cash value. Hence it was decidedly to the interest of the property owner to take care of his investment.

The natural result of this was a higher standard of physical health among negro children than has ever been attained since the emancipation, for among other unfortunate sequelæ following this perfectly righteous step was the handing over of the lives and care of negro progeny to their more or less fatalistic parents, who, removed from the control of intelligent direction, soon lapsed into their African condition of irresponsibility. The unfortunate creatures (as the negro race has done in all history) then reverted, in a large measure, to aboriginal conditions.

The negro, due to his heredity and environment, is essentially a fatalist, and when moved at all it is by his emotions, and not by judgment.

It must be understood, however, that for the first ten or fifteen years following the war many negroes, especially those who had been most closely associated with the white people, that is to say, the house-servants, continued to follow the training and habits which had been ingrained during their more intimate association. To those of us who have been born and raised in the South, it requires but a few moments' contact with the individual darkey to judge of his earlier training.

That negroes are devoid of love and affection for their offspring is not true, yet I have been repeatedly struck by the fact that they can and do yield a greater degree of affection, solicitude, and attention to white people than they will continuously accord their own family. Mark well the use of the word "continuously," for it is this phase of the problem which is curious from the psychologic standpoint. A striking illustration of this is the devotion so markedly shown by slaves to their owner's family while the master was at the front during the war.

These preliminary remarks are essential to the study of this question, for it must be borne in mind that among intelligent people who have had training in sanitary laws a degree of exemption from infectious diseases among their children may be looked for, whereas this seldom applies to the negro. Exemption is practically a result of unconsidered cause, such, for example, as might apply to the power of resistance as exhibited in heredity, environment, habits, etc. As further proof of this statement there may be noted the well-known fact that in those diseases to which negroes are more immune than whites, this immunity lessens in a marked degree as the negro blood is proportionally diluted by white; as an example of which may be cited the fact that among the blacks there is a relatively larger degree of immunity to malaria, typhoid, intestinal diseases, tonsillitis, mumps, influenza and yellow fever.

Mulattoes, octoroons and quadroons are much more susceptible to the infectious diseases and are especially more susceptible to the ravages of syphilis and gonorrhea than are their more deeply tinted brethren. Negroes of all shades are extremely susceptible to tuberculosis, and also to measles. In my experience extending over a period of nearly twenty years, I do not recall having seen a case of scarlet fever, diphtheria, mumps or tonsillitis in black negroes, and since beginning this paper I have made inquiries of all the physicians with whom I have come in contact and have received practically the same answer as to the immunity of the pure-blooded negro from these diseases.

Mulattoes, quadroons, and octoroons are decidedly more susceptible to scarlet fever, diphtheria, mumps and tonsillitis, but with rather large experience among the different shades of negro people, I can recall at this moment but very few instances of these diseases among them.

2. Reference has already been made to the fact that in the spring of 1909 our influenza infections disappeared after about May 20. Precisely the same thing happened this year. Thus of 48 cultures taken between May 1 and 19, influenza was found in 19; of 19 cultures made between May 19 and 31, influenza was found but once, on May 23. At autopsy the *B. influenzæ* was found in cultures from the lungs but once after May 19, this being in a patient who was admitted two weeks previously.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

It might not be out of place at this point to call attention to the fact that mulattoes, quadroons, and octoroons, as they are at present in the South, are mostly descendants of their own type of people, and not the result of crossing of white and black bloods; in other words, mulatto man and woman have as progeny mulattoes; quadroons present the same as themselves, as also do octoroons. There is, however, a marked tendency toward a decrease in the number of children born to these light-colored negroes and the nearer they approach to pure white blood the fewer the children they have, as a rule.

Within the past ten years there has been a marked improvement in the South, both among the whites and negroes, in educational conditions and in the mode of living. Nearly all classes and conditions of people have better houses, better food, and have paid a larger degree of attention to matters of hygiene. Poverty makes for all the ills of life, but with greater returns for cotton during the past ten years the result has been a vast improvement among all Southern people, and as the white man benefits so also does his shadow, the negro.

One of the gravest problems confronting the whites in the South, however, is trying to find means of preventing tuberculosis among the negroes of all shades and degrees. When it is remembered that practically all household service in the South is rendered by negroes it can be seen how necessary it is that the white people guard themselves against this evil which the negro race carries with it.

Bearing in mind the fatalistic tendency of the darkey, one should easily understand why it is difficult to get them to abandon their habit of carelessly spitting around the house, and the injurious practice of hermetically sealing their sleeping apartments, as nearly all do. Those who have directed much attention to health matters know how difficult it is to get any class of people to fear dangers that they cannot see or realize, and it is a thousand times more difficult to get the negroes to grasp the idea that there may exist anything in microscopic life that could be a menace to their health.

With a population of approximately 10,000,000 negroes living in the South, with every disease-carrying possibility and proclivity, as may be instanced in tuberculosis, uncinariasis and amebiasis, it may be seen that the problem before us is not alone political, but one striking at the vitality of the race. I protest against any attempt made toward keeping these poor unfortunate creatures from being educated. Education in any degree never hurt any race and instead of ceasing the attempt to educate negroes, they should be taught their duty to their neighbor as well as to themselves. It was my privilege and pleasure to advocate ten or fifteen years ago the teaching in the public schools of the natural history of disease and the inculcation of the idea that it is far better to prevent disease than to attempt its cure when once acquired. Hospitals are a great blessing, as are also any other humanitarian projects, but it is infinitely a better and wiser plan to prevent diseases than it is to wait to cure them.

No better place than here can be found to emphasize the sad fact that the negro race, including all shades, is, in this country, at least, an unmoral people. There are, of course, exceptions, though generally speaking this statement is correct, and to prove it we have the striking testimony and evidence of one of their own race in the person of William Hannibal Thomas of Massachusetts, who in his "American Negro" says:

> My study and questioning of the average negro as he exists in the United States to-day, has convinced me that he is bestial by nature, that he holds in no regard whatever such virtues as may be present in the mothers, daughters, wives, and sisters among them. They revel in lewd conversation, erotic practices, and unlimited sensual pursuits. Especially do they delight in encouraging the approaches of whites among the women of their kind. That such licentiousness is prevalent is not surprising when we reflect that animal impulse is the sole master to which both sexes yield unquestioning obedience.

As illustrating the contradictory nature of the negro, the same writer avers:

> While imputations of immorality are resented by the known impure, there is a common disposition to question each other's morals, and rarely is either male or female accorded a clean bill of approval. . . . Marital immoralities are not confined to the poor, the ignorant and the degraded among the freed people, but are equally common among those who presume to be educated and refined.

To one who is a southerner born and bred it is a source of the greatest pride to know that in the South to-day there is found a proportionately larger number of the pure Anglo-Celtic type of people, with fixed determination to prevent that miscegenation which would Africanize this country. As an American who loves his native land from the Atlantic to the Pacific and from the Canada line to the Gulf of Mexico, and as a medical man, I warn the white people of this country against this insidious evil which to-day is sapping the very foundation of that Aryan blood which stands for the republican form of government and the highest type of civilization.

Miscegenation in the North is certainly at this day more in evidence than it is in the South, and if decided steps are not taken against this curse by the white people of that part of the country, they are creating for their descendants a Frankenstein monster indeed. In the South this phase of the question is practically settled. A white man to-day who wilfully lives with a negro woman, be she black or yellow, is ostracized, and in nearly all our southern states severely punished. But from the standpoint of a national menace the negro question is so glaringly in evidence that it is along these lines that this paper is presented.

Howard and Reynoir Streets.

HEMIPLEGIA FOLLOWING ACUTE INFECTIONS *

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The cerebral palsies of childhood have received considerable attention in certain rather elaborate treatises; such as those of McNutt, Lovett, Osler, Sachs and Spiller in this country, and of several writers abroad, but aside from these not much has appeared on the subject. Thus, even in the most elaborate systems of medicine, paralysis of central origin in diphtheria is given the briefest consideration, or else is not mentioned at all. These facts are thought to justify the publication of the following reports of cases.

CASE 1.—*History.*—The patient, a schoolgirl, aged 9, was seen at the University Free Dispensary Feb. 8, 1908. Her

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

father was living at 38 and well except that he was nervous; her mother was living and well at 36. She had had two miscarriages, both at about three months. Two brothers and one sister were living and well. A paternal aunt was paralyzed at 24, following labor. Another paternal aunt was extremely nervous. Otherwise the family history is negative. The patient's general health had been good. She was the second child. There was no trouble at her birth. She had croup in early childhood; had never had convulsions, but when a child had a habit of holding her breath when crying. She walked and talked at the usual age, and did as well in school as others. She was never seriously ill up to her attack of diphtheria, and was never seriously injured.

Present Illness.—In September, 1906, she had a severe attack of diphtheria with membrane in her throat and nose. She was given 12,000 units of antitoxin and seemed to progress ordinarily well until the middle of her attack when she developed darting pains in the right arm and leg. They were spasmodic, and each one lasted only two or three minutes. For four days the pain grew steadily worse and finally was very severe. It then began to decline and at the end of the week was practically gone. When present, the pain was worse in the arm than in the leg. There was no tenderness to touch between the attacks, so far as the mother recalled. The mother thought that even during the pain the arm and leg were rigid, and certainly they were so afterward. There was diplopia and some trouble in articulation for a short time following this attack. During the intervening two and one-half years up to the present time there had not been much change. The right arm was spastic with frequent more or less spasmodic contractions. The leg had been less spastic, but was still noticeably stiff, and the patient had slight trouble in walking, and considerable trouble in running. Attention always made the condition worse.

Physical Examination.—The patient was a moderately well-developed, well-nourished girl. The temperature was normal, the pulse 86. The forehead was somewhat low and narrow. The eyes and ears were normal, except for a slight tubercle on the right ear. The vault of the hard palate was high and narrow and very irregular. The teeth were set very irregularly. The arteries were soft. The apex-beat of the heart was in the mid-clavicular line. Otherwise the heart examination was negative. The right leg seemed slightly smaller than the left. The right arm was very firm and muscular and, evidently, better developed than the left. The measurements were as follows: The right forearm, a little below the elbow, 17 cm.; the left forearm, a little below the elbow, 16.75 cm.; the right calf 22.75 cm., and the left calf 23.5 cm. The patient was subject to frequent attacks in the right hand and arm of an athetoid character. The attack started in the hand with hyper-extension of the hand and flexion of the wrist. The hand was rotated until the palm was turned completely outward, when there was a flexion in turn of the second, third and fourth fingers. The arm was then rotated in the opposite direction until the palm pointed inward. The entire right arm and leg became spastic during these maneuvers. There was no pain associated with them. The patient had increased knee-jerks, especially on the right side, but there was no ankle-clonus. There was a possible faint right Babinski. She seemed to feel cheerful and happy and was always active, although at times she said she was unusually tired. She had a little frontal headache occasionally.

Course of Disease.—Directly after coming to the dispensary the patient was placed on thyroid extract, 5 grains twice a day, and within a few days her arm and leg had made a very striking improvement—so much so that her parents were convinced of her complete recovery at an early date. The cause of this improvement was not easy to determine, but it was probably not due to the use of the thyroid extract, especially since, after three weeks, there was no further improvement, and within a short time there was a complete relapse to her former condition. She continued coming to the dispensary at more or less long intervals up to about the end of 1908. At that time there was no permanent improvement, but there had been several short periods of temporary benefit. On Dec. 19, 1908, when waked in the morning, she appeared unusually drowsy. When eating her breakfast she said that her face on the right side felt numb and later that it felt as if needles were pricking it. After a little time this feeling went to her right hand also. Finally, all the right side felt the same way. This condition of affairs lasted until 10:30 a. m., when the feeling began to go slowly away, but the patient was very sleepy for some time afterward. After the feeling had partially gone, the mother noticed that the hand and arm had lost their spasticity and were scarcely up to normal so far as tonus was concerned. There was also some lack of power in the hand and arm. On the afternoon of the first day of the numbness the patient was brought to our office at 3:30. She was then a little dull and heavy mentally, and there was still some feeling of numbness in the right side. The reflexes were about normal on both sides. The right arm hung rather limply by her side. There was absolutely no trace of spasticity or athetosis and all movements of the right upper extremity were performed with less power than those of the opposite side. There was some headache on the first day, and in the evening this became very severe. The next day she was stupid and weak, but when seen on the following day she seemed as well as ever, except that the condition of spasticity on the right side had returned. Shortly after this time she disappeared from observation and we have not been able to learn anything of her since.

CASE 2.—*History.*—The patient is a single woman, aged 22. The father is living and well at 51; at times drinks to excess. The mother is living at 47 and has heart trouble and tuberculosis. One sister died of diphtheria. One sister and four brothers are all well. There is no other nervous or mental trouble in the family, but a number of the mother's family have died of tuberculosis. The patient was always delicate but up to 12 years of age was never seriously ill. She had measles in childhood, but never had rheumatism. She walked and talked at the usual age. There was no trouble at her birth. She was uncommonly bright up to the present attack.

Present Illness.—At 12 years of age she had "black diphtheria." She lived twenty miles in the country and had no physician until after her paralysis appeared, and no antitoxin at any time. Three or four weeks after her attack of diphtheria she suddenly developed a right hemiplegia, including the face, arm and leg. There was a complete loss of motor power, including speech. Apparently there was no sensory involvement. The condition lasted one day, when she appeared to entirely recover and remained well for one week, at the end of which time there was a second attack with very much the same symptoms and lasting two days. At the end of two weeks she had still a third attack, following which she was in bed for six weeks. As this history is given by the mother from her recollection, it is not certain that all the facts are accurately stated, including especially the complete recovery between the attacks. The mother says that the patient was not unconscious at any time, but that her mind after the third attack was "just like a baby's," by which she probably referred to the fact that the patient found it necessary to relearn speech. At the end of twelve days she could move her foot a little, and at the end of seventeen days spoke the word "Henry." The mother thinks that at this time she could understand spoken, but not written words. As time passed she gradually acquired control of the right side, first in the face, then in the leg, and later in the hand and arm. Her face apparently recovered completely. There has always been a slight stiffness in the right leg, and the right hand and arm are distinctly spastic. She was a long time in learning to speak, but finally reached the point at which she had very little trouble, though even at present she cannot always recall words as she wishes to. She went to school after recovering from her paralysis and learned readily. She is always cheerful and happy in disposition.

Physical Examination.—The patient is a well-developed and well-nourished young woman. There are no evidences of degeneracy. The pupils are equal and react normally to light and distance. The ocular movements are normal and there is no nystagmus. Vision is good, but the patient says that occasionally when looking suddenly to one side she has double vision. Smell and taste are normal. There is no involvement

of the fifth or eighth nerves, but there is a slight defect in the right lower seventh. Her tongue is normal in appearance and is protruded straight. There is no trouble in swallowing. The heart and lung examination is negative, except for a faint blowing mitral murmur. The arteries are soft. The urine examination is negative. The deep reflexes of the left arm are normal; those of the right are much increased. The right patellar and Achilles reactions are very active, the left patellar and Achilles are normal. There is no ankle-clonus, but there is a faint Babinski reaction on the right side. The patient walks and runs well, but complains of slight stiffness in the right toes in movement, and there is a marked degree of spasticity in the entire right upper extremity. Grip in the right hand measures 17 and in the left hand 27. Muscular power in the right biceps and triceps is fair, but not so good as in the left. The middle finger and the thumb of the right hand are the most difficult to move. The first and little fingers are the easiest to move. The right forearm at its largest point measures 21.25 cm., and the left at a corresponding point measures 22.75 cm. Nothing unusual is noted in the patient's mental condition, except that, contrary to her mother's statement, she does not appear to be a particularly bright girl. Her speech is normal, except that she occasionally has some difficulty in finding the proper word.

CASE 3.—*History.*—The patient is a boy, aged 4. The father is living at 38; well and temperate; mother living at 37, well. There are no brothers or sisters. There is no tuberculosis, cancer or nervous or mental trouble in the family. There was no special trouble at the patient's birth and instruments were not used. The patient was breast-fed. His general health has been good, except that he has had croup every winter. At two and one-half years he had measles, and one year ago had diphtheria, but was not very ill with either. His appetite has been good, and his bowels regular.

Present Trouble.—On Dec. 28, 1909, the patient became ill with lobar pneumonia involving one lung. He was very ill and his temperature was above 103 for nine days. Three days after his temperature went down he developed a right hemiplegia. At noon he was noticed to have some weakness in the right hand. This slowly increased, and by the next day his hand and arm were completely paralyzed. Later in the same day the leg and foot of the same side also became paralyzed and there was motor aphasia. The face was not affected then or later. There was no sensory disturbance noticed and no disturbance of the sensorium. Thirteen days after the paralysis appeared he began to move the hand and arm, and speech power began to return, and in a few days he could put the hand on top of his head. He now uses the hand as well as ever, and his enunciation is good. A few days after power of movement appeared in the arm he began to use the leg, but improvement was slow, and even now use of this limb is decidedly impaired. There were no eye symptoms at any time. Three days after the paralysis appeared he developed a left middle-ear abscess which broke spontaneously and is now quite healed.

Physical Examination.—The patient is a well-developed and well-nourished boy. His head is well formed and there are no scars or evidences of degeneracy. The temperature is normal, the pulse 94, strong and regular. The examination of the heart, arteries and lungs shows nothing abnormal. The tongue is clean and is protruded straight to the front. The abdomen is protuberant. The pupils are equal and react normally for light and distance. The ocular movements are normal, and there is no nystagmus. Sight and hearing are good. Muscular power in the right arm seems normal. The patient limps slightly with the right leg, but examination shows no muscular weakness of any consequence. The circumference of the right thigh and calf is slightly less than at the same point on the other side. The reflexes in the left arm are normal, in the right moderately increased. The left patellar and Achilles reflexes are greatly increased. There is a slight ankle-clonus and Babinski on the right side. The abdominal and cremasteric reflexes are active on both sides. Sensation is normal everywhere, so far as can be determined. The right fingers are a very little stiff. The right leg and foot are moderately stiff. There is a very slight ataxia in the right hand. Speech and mental condition are normal.

CASE 4.—*History.*—The patient, a girl of 11, is one of ten children. The family history is good in all respects. The patient has always been considered well and strong, though not large for her age. There is no mention of any of the ordinary children's diseases. Since 5 years of age, she has attended school and has done well there.

Present Illness.—The trouble is dated from Jan. 4, 1910, though the patient had not been quite natural for the two preceding weeks and had seemed to want to be alone and undisturbed. On Jan. 4, 1910, in the afternoon, she suddenly fell over on her side or back. She was unconscious at the time, but remained so for a few minutes only. The same afternoon she was able to walk, but the right hand and arm were almost paralyzed. She attempted to speak, but was unable to do so. She seemed to understand what was said to her, and appeared perfectly conscious. There was no muscular twitching and no pain. At about 8 p. m. she began to talk and her speech was entirely normal, until the next morning at 8 a. m. when there was again the loss of speech power without the other manifestations of trouble. For three days and nights this alternating loss and return of speech power continued, since when she has been unable to utter a word, except "papa" and "mamma." From the date of the onset of her trouble to February 1 she was about the house most of the time. Her mind seemed clear and she comprehended all that was said to her. She attempted to play with the other children, but could not speak. During this time, however, she had occasional "sinking spells" when she would fall, always toward the right side. She always attempted to protect herself in the fall. She was not unconscious, and there were no symptoms resembling convulsions. She slept well at night; had no rash or other sign of illness. During all this time, except the first three days, her mental condition was good. Her appetite was poor. There was no involvment of the right leg at any time, and up to January 29 the improvement in the hand and arm was so marked that she could sweep a room with very little difficulty. The parents noticed no disturbance in the eyes or face. On February 2 at 1 p. m. clonic spasms developed in the right side, involving, at first, the face, shoulder, arm and hand, and toward evening the right lower extremity. Each attack lasted two or three minutes, and was followed by a short period of drowsiness, and then by another attack. The parents think she was unconscious during these attacks, but not during the interval. During the afternoon and night of February 2 and all day of February 3 she was never long free from a convulsion. Toward evening the attacks became a little milder and a little less frequent, but on February 4 she had convulsions about every ten minutes. She complained of no pain, and gave no signs of distress. She could swallow, but apparently had no desire for food. She had little, if any, fever (parents' statement).

She was admitted to the University Hospital February 4 at 8 p. m. Her temperature was then 100.6, pulse 120 and respiration 24. When first seen by one of us the following morning she was lying asleep. There was nothing unusual in her attitude or appearance, except that the right corner of the mouth drooped a little, and there was some fullness of the right upper eyelid. Directly after being awakened a convulsion began, starting in the right face. The eyelids then began to twitch, the right more than the left. The right eyelids during the convulsion were closed and the left about half open. The convulsion then extended to the right arm and then to the right leg. The whole attack lasted about one and one-half minutes. During the next thirty minutes six more attacks occurred, four being general and two limited to the face only. Subsequently they occurred in about the same order of frequency up to the time of her operation. Both facial attacks lasted fifty seconds.

In all the attacks, both eyes were drawn strongly to the right. The pupils were dilated and did not react to light in the midst of the most severe attacks, but did so in the lighter spasms, and toward the end of the more severe convulsions.

All the attacks began in the face save one, which commenced in the right arm. Usually the order was face, arm

leg, and cessation of movement was in the reverse order. She was probably conscious throughout the light attacks and at the end of the more severe ones, but in the midst of a severe convulsion, sharp pricking of a pin produced no response. During the severe attacks the right rectus abdominis muscle was very hard, the left only slightly contracted. The convulsion never spread to the left side, except that the left eyelids twitched decidedly and in the most severe attacks the left arm and leg contracted slightly.

The reflexes varied decidedly. After a severe convulsion no reaction could be obtained in the right arm or leg. This included the plantar reflex, which could not be demonstrated at any time in the right foot during the examination. In the interval between attacks the facial and abdominal reflexes appeared about normal. The deep arm and leg reflexes were somewhat increased, and, though varying considerably from period to period, there was no striking inequality in the two sides, except directly after the convulsion. There was no evident voluntary movement at the time of the examination in the right arm or leg, but on the day preceding the patient was observed on one occasion to move the right arm slightly.

In speaking or swallowing there was no movement in the right face. On request the patient closed the eyes and wrinkled the brows normally. A subsequent careful examination showed very slight response to light in the pupils in the midst of a fairly severe attack. A possible slight Babinski was obtained on the right side. As far as could be told there was no sensory disturbance. She swallowed well.

At times the patient spoke the words "yes" and "no" quite distinctly. She occasionally called the word "nurse" and said "good" for food that pleased her. She never used a complete sentence. She probably comprehended what was said to her and sometimes attended to requests and sometimes did not. She displayed a childish interest in a tie-pin; at times asked for a bed-pan. She screamed repeatedly as if in severe pain.

Dr. Baker, the resident physician, had observed double deviation of the eyes, and had repeatedly seen elevation of one eyeball and depression of the other, with frequent variation and, toward the end of a convulsion, a peculiar oscillatory movement most marked in the right eye.

Urinary examination previous to the operation showed nothing of consequence, except specific gravity of 1036 and a few cylindroids. Two days after the operation a trace of albumin, but no cylindroids or casts, was found. A few days later even the albumin had disappeared. Previous to the operation the leukocyte count was six thousand. The temperature was variable, but frequently up to 103.

Operation.—On February 7 an operation was done by Dr. J. E. Moore under ether anesthesia. A large bone flap was removed from over the left motor area. When exposed the cortex showed some congestion and slight bulging of the brain substance. Beyond this, in a careful examination, nothing was found. The flap was replaced and the skin sutured.

Postoperative History.—On February 10 there was no movement of the right hand or arm, but a very slight movement in the right foot on deep pricking. Sensation seemed greatly lessened in the right leg and foot, but was probably not wholly absent. The mental condition was much better than it was preceding the operation. At 7 p. m. following the operation, the patient had a convulsion lasting two minutes. At 8:15 there was another, very slight, lasting only a few seconds. In the next hour there were two slight convulsions, but at one time she was conscious and answered when spoken to. Up to 7 the next morning, however, there were forty-five convulsions but all much milder and of much shorter duration than previously. The convulsions continued to 8 p. m. February 9, gradually growing less severe and less frequent. Early on the morning of the 10th the patient again had several slight convulsions, but none afterward. When she was sufficiently recovered from the operation it was found that she had a partial sensory aphasia and also visual amnesia.

The wound did nicely until February 16, when the patient pulled her dressing off and infected it, which greatly delayed its healing. Otherwise her surgical convalescence was uneventful, and the return of motor and sensory power in the right side was fairly rapid. No culture was made at the time of the operation, but when suppuration appeared in the wound the *Staphylococcus pyogenes aureus* was obtained from it.

On March 4 the patient moved her right leg very well; movements of her hand and fingers were also much improved, and she was able to pick up an orange with this hand. On March 16 she was up and walked about. March 23 she walked quite well, except that the right leg was rather spastic. The right arm was greatly improved, but the grip in the hand was feeble. All movements with this arm were performed slowly and were both spastic and ataxic. There was no special atrophy of hand, arm or leg. Sensation for touch, pressure and pain was apparently normal in the tongue, face and extremities. In speaking and laughing the right face behaved about the same as the left. At this time she was also beginning to speak and write a few words and could understand the name of most objects handed her and tell the names of some.

She was discharged April 2, very much improved.

On May 17 she was reported by her home physician as being able to use her leg as well as ever. She had again become able to use her right hand in writing, but the fingers were a little stiff. Her vocabulary was fair, but not so good as before her illness. In all other respects she seemed perfectly well.

CASE 5.—For permission to publish this case we are indebted to Dr. S. Marx White, of Minneapolis, with whom one of us saw the patient in consultation, and to whom we are indebted for many of the notes referring to the case.

History.—Since 1901 the patient, a married man aged 54, had suffered from a bladder obstruction which annoyed and disturbed him to such a degree that, on April 6, 1902, a prostatectomy was done by Dr. J. E. Moore. This relieved the immediate difficulty. Up to about January 12 of the following year the patient was fairly well, but on this date the right epididymis was opened. On Oct. 17, 1905, the right epididymis was opened and removed.

During the year 1906 the patient was obliged to give up one-half of each day for rest. During this time also the urine became cloudy and was found to contain colon bacilli and staphylococci. There were no casts. Some small polypoid granulations sprang up at the margin of a blind pocket or partially closed sinus in the prostatic urethra, with intermittent obstruction to the flow of the urine. It was necessary occasionally to remove the granulations and irrigate the bladder.

In February, 1907, the obstruction became more pronounced and the use of the catheter began. In April, 1908, the patient went to St. Mary's Hospital in Rochester and Dr. C. H. Mayo performed a suprapubic cystotomy. The removal of a V-shaped portion of the fold of mucous membrane relieved the obstruction temporarily and there was some increase in the general strength. Hexamethylenamin (urotropin) and the catheter with bladder irrigation made up the treatment employed. Occasionally the suprapubic scar would open and drain for a few days. As an illustration it opened spontaneously June 30 and closed July 3, 1909. In spite of the treatment employed, however, the patient's general condition gradually failed. On July 6, 1909, he had a painless contraction of his left forearm, which lasted about an hour. The sinus opened July 19, 1909, and drained to Aug. 4, 1909, and on the last day mentioned, August 4, the patient complained of a peculiar numbness, which extended over his left hand, wrist and forearm, as if a tight glove were drawn over the parts. He did not speak much of this feeling, but would attempt to shake it off.

On August 5, his business partner sent an automobile to the house to take the patient for a ride and he seemed in every way normal mentally. In the afternoon of the same day, about 5 p. m., his wife suggested that he call up his partner and express his thanks. He was unable to recall the name until prompted, but telephoned in the usual manner and expressed his pleasure at the use of the car. A few moments later he turned to his wife and made an irrelevant and irrational remark, and within five minutes had a left-sided convulsion. Dr. White saw him at 6:30 p. m. The convulsions were being frequently repeated, and at the consultation at 8 p. m. the attacks were persistently evident in the left face and arm, while both legs were rigid.

No convulsions occurred except on the left side, but they continued at frequent intervals during the days and nights of August 6, 7, 8 and 9, and were uniform in character. There would develop suddenly a quick, violent, muscular movement of the left face and arm and occasionally of the left leg. The patient was able to talk at times, but his utterance was incoherent. His temperature began to rise with the onset of the convulsions and ranged from 99.8 to 103 F. On August 9, 1909, after a consultation including Drs. Moore, Tibbets, White and Jones, a diagnosis of acute septic encephalitis was made and an operation was advised for exploration and possible relief.

Operation.—The family having assumed the responsibility, on the following day, Dr. Moore removed a large osteoplastic flap from the right parietal region and exposed a large, very much congested and inflamed area in the motor cortex. No gross breaking down of the brain substance was noted, except in the center of the area where a softening process had begun. This area was incised and temporary drainage inserted.

Postoperative History.—There were no further severe convulsions, but slight and abortive seizures continued up to the time of death. The man became stuporous and died sixty hours after the operation. There was no autopsy.

The exact cause of the paralysis in the above cases it is quite impossible to give, and a consideration of the known facts concerning infantile hemiplegia does not serve to clarify the situation wholly.

Hemiplegia due to thrombosis and embolism was established pathologically by Virchow in 1846. In 1876, Huguenin was able anatomically to distinguish clearly between encephalomalacia and encephalitis; and in 1884 Strümpell's article on "Acute Encephalitis of Children" brought out the fact that many of the cases of infantile hemiplegia are due to encephalitis of the motor area and this paper aroused special interest in the subject. In recent years much attention has been given to the histology and bacteriology of encephalitis, including especially in this country the valuable work of Councilman, Mallory and Wright, and of Southard, and his co-workers, Sims, Keene, Stratton and Richards. But up to the present it has been impossible to clinically distinguish the different groups of infantile hemiplegia according to their etiology (Southard), though the work of Oppenheim, Taylor and Southard will doubtless stimulate our activity and increase our capacity in this direction.

The deleterious influence of the diphtheria toxin on the nervous system has been long and widely known and both clinical and pathologic evidence combine to show that the nerves are much more subject to this influence than the ganglion cells of the cord and cortex. Peripheral paralysis occurs in diphtheria in as high as 5 to 15 per cent. of the cases, while out of 800 diphtheria patients in the Berlin Charity Hospital only three developed hemiplegia and out of Wallenberg's 190 cases of infantile hemiplegia only three were of diphtheritic origin, while of Osler's 120 cases not one was attributed to this cause. The histologic study of material from post-mortem cases of diptheria shows that changes in the ganglion cells are uncommon, and some authors record their entire absence. A few, however, insist on certain changes in the ganglion cells, though mostly of a light character, and in the small number of recorded post-mortem examinations the paralysis has usually been found to be due to embolus or thrombus. Taylor states that the causes of infantile hemiplegia in order of frequency are: acute encephalitis, thrombosis (arterial or venous), hemorrhage, and embolism. Very rarely a case has been reported in which the paralysis was believed to be partly of central and partly of peripheral origin.

Of the two cases of paralysis following diphtheria, here reported, there was undoubtedly a central lesion in both, but it may be that in Case 1 there was both a central and a peripheral lesion. Whether the cause was acute encephalitis, or one of the other conditions mentioned above, would have been difficult to determine at the time and is quite impossible with the history now at hand, though the prolongation of the symptoms previous to the development of the final and complete paralysis in both cases and the tendency of the symptoms to increase in intensity over a period of some days in one case would suggest encephalitis rather than one of the vascular conditions, which usually develop their symptoms comparatively rapidly.

Contrary to the opinion of the laity, paralysis in diphtheria is not due to the use of antitoxin, though the use of antitoxin does not appear to have lessened the number of cases of paralysis, either of central or peripheral origin.

Paralysis, either of central or of peripheral origin, in the course of pneumonia, is very infrequent. Thus Vansek, in reporting a case of peripheral neuritis, states that neuritis and polyneuritis after croupous pneumonia is a very rare disease. Enouf reported a case of paralysis of his own and collected five others. In two of these cases, which came to autopsy, one had a meningeal hemorrhage and one a spinal cord softening. The other cases were of uncertain variety, including one case of paralysis of both legs and one arm. All four patients recovered after a duration of some hours to some weeks. Though there is no reason apparent why paralysis of central origin in pneumonia might not be due to true encephalitis, I do not know of a positive case in literature, except in connection with meningitis. There has been so little work done on the subject, however, that definite conclusions cannot yet be reached. As regards the nature of Case 4, in particular, no positive statement can be made. It was looked on previous to the operation as an instance of cerebral tumor or encephalitis. The operation and subsequent course make the diagnosis of tumor impossible and the diagnosis of encephalitis correspondingly more probable. In Case 5 the diagnosis of septic encephalitis seems justifiable.

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ABSTRACT OF DISCUSSION

DR. M. L. PERRY, Parsons, Kan.: This question of infantile hemiplegia is one on which there has been division of opinion, especially as to the pathogenesis. When the paper on this subject was presented by Strümpell (in 1874, I believe), in which he took the position that the lesion in these cases was an encephalitis similar to or identical with the process found in anterior poliomyelitis, there were many, especially among the foreign men, who accepted the theory. It has not been accepted as fully in America and I think the weight of opinion among the men in this country has been until recently that these cases were of vascular origin. Dr. Southard, of Boston, has recently done some work that has thrown considerable light on this subject. He has found that the majority of these cases are due to an encephalitis, but the process is a different one from that found in the cord in anterior poliomyelitis. He has made rather extensive bacteriologic studies in such cases and has found that there is no one constant organism. I have myself been of the opinion that a large number of such cases were of vascular origin, until this work of Dr. Southard has convinced me that I have been mistaken. Viewed from a clinical standpoint the subject is of the greatest possible importance from the fact that a large number of such patients develop epilepsy later on. In a study of some nine hundred cases of epilepsy I have been much impressed with the frequency with

which we find a history of attacks, similar to those described by the doctor in his paper, occurring as a precursor of epilepsy. In fact, as a result of a careful study of this subject I am convinced that the brain lesions causing infantile cerebral palsies may be ranked as one of the most important and frequent causes of epilepsy.

Dr. Sanger Brown, Chicago: It is a little doubtful whether these cases admit properly of a classification that would enable them all to be discussed together. According to the essayists the diphtheritic paralysis and encephalitis are adduced as the cause of the hemiplegia. I think the pathology of diphtheritic paralysis is pretty well defined to be a peripheral paralysis, and due to the effect of the toxin of diphtheria acting on the peripheral motor neurons, some being more sensitive than others, but in severe cases all being affected. There are various evidences, such as the usual impairment or loss of the reflexes in the parts concerned. Now I do not think in either of the two cases referred to by the essayists, even though signs of diphtheritic paralysis appeared before hemiplegia, that is, in the paralysis of the palate, or in the power of convergence, or the pupillary condition, even though that had occurred, and afterward hemiplegia occurred, it would be proper to regard the hemiplegia as being caused by the diphtheritic paralysis. It would be, I think, fair to assume that it was due to the general infection, as it might occur in any of the infectious diseases, and as Dr. Sachs has pointed out, or contended for very ably, the hemiplegia would be due to a vascular disturbance, due to the infectious disease, and not to the toxin acting on the peripheral neurons. I would strongly take the view that these two conditions were merely coincident, and I do not think it would be at all proper to regard the hemiplegia as a form of diphtheritic paralysis. Now, I think each case should be considered separately. The only other point that struck me was in the case of the child with the paralytic and sensory attacks in which there was no fever. The symptoms were described, and from the subsequent history I should strongly suspect interstitial sclerosis.

Dr. L. H. Mettler, Chicago: I would like to ask Dr. Perry or Dr. Hamilton how they differentiate, aside from the mere difference in location, between the pathology of acute hemorrhagic encephalitis and acute hemorrhagic anterior poliomyelitis. The theory propounded by Strümpell, wherein he classified certain forms of infantile encephalitis, nuclear inflammation, and anterior poliomyelitis as one and the same pathological process, differing only clinically by reason of the different localization of the lesion—a functional more than a pathologic differentiation—has always been more popular in Europe than in America. If Strümpell's condition is the true one, it seems to me that it offers us a distinct advantage in the practical consideration of these affections. Clinical differentiations between diseases, along easily observed lines of function, render the diagnosis and management of diseases easier and more accurate than when those differentiations depend on minute post-mortem pathologic findings. I, for one, would like to be more minutely informed on this matter. As I feel now, it is not the nature of the lesion so much as it is the location of it, that marks the distinction between these inflammatory troubles of the central nervous system, especially its gray matter. I think Starr takes emphatically the same position in his recent work on diseases of the nervous system. If these infantile palsies, cerebral, nuclear, and spinal, are absolutely distinct and dissimilar disease processes, I think the differences, apart from mere location of the lesion, ought to be brought out more clearly by our teachers of pathology. Sarcoma of the brain and sarcoma of the cord are not regarded as essentially different diseases.

In this connection, while speaking of localization differences being made the basis of nosology in the absence of any real pathologic differences, I desire to speak of another matter not wholly irrelevant to the subject of the paper. Until the present time we have been talking a great deal about multiple neuritis, of the alcoholic and infectious types, as though it were a distinct, unique, and *sui generis* disease-process. Many pathologists now, however, are modifying their views, and are inclining to adopt more and more the teachings of Charcot, for which he long ago contended so earnestly and for which he received so much adverse criticism, namely, that these alcoholic intoxications and infections, when studied under the guise of multiple neuritis, represented mere localization differentiations and not essential diseases. Other organs were always more or less also involved, and the alcoholism or infection was the essential basis on which the cases in practice were to be classified. Present investigations show that in alcoholic polyneuritis, for instance, the degenerative process may be traced up through the nervous system to the very cortex. I cite this as a parallel instance somewhat to the question in hand, and to point out that we must not be too narrow in our conceptions of disease. We must be careful not to refer to clinical manifestations, which represent merely a functional localization, as special diseases.

Therefore, I would like to be informed wherein pathologically, not functionally, hemorrhagic polioencephalitis differs so much from hemorrhagic poliomyelitis as to warrant the consideration of these two maladies as wholly distinct and separate diseases. It is the end and aim of all science to generalize, if possible, to reduce to small groups many related phenomena, and to harmonize apparent discrepancies. It certainly is not the end and aim of science to merely enumerate a vast mass of minute and particular observations that may be closely interrelated.

Dr. W. A. Jones, Minneapolis: The object of this paper was to provoke a discussion as to the influence and effect of infections on the central nervous system. The description of the three supposedly diphtheritic cases means that infection is not only peripheral, but of central origin, and not infrequently destructive or inflammatory lesions are found in these so-called peripheral paralyses. If encephalitis and poliomyelitis are due to infections, I do not see how we can differentiate between these various diseases and their onset.

The two last cases reported, to my mind, are the most important, because they both show a central localized infective and inflammatory process in the cortex, and both cases, which were operated, seemed to confirm the work of Dr. Southard.

The third case, that of the child, was particularly interesting, but we were not able to determine the beginning of the infective process. The lesion was a characteristic one, if we can judge from gross appearances, and the inflammation involved mainly the cortex and did not extend into the white substance extensively. She made a prompt recovery from her peculiar epileptiform attacks and practically complete recovery from the hemiplegia following operation. The character of the epileptiform attacks in the third and fourth cases was distinctive in that the attacks were sudden, violent, repeated muscular contractions without paralysis between the seizures; that they were irritative and cortical I think is undisputed, particularly with our findings.

TUBERCULOSIS IN MARKET MILK OF CHICAGO *

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During the summer of 1909, a series of examinations of market milk was undertaken in Chicago, at the instigation of the Commissioner of Health, Dr. W. A. Evans. Several similar investigations have been reported in other localities in the United States during the past two years, the results of which bring out clearly the high incidence of tubercle bacilli in milk-supplies and the consequent importance of milk control from the standpoint of public health. It is believed that the results herein recorded, inasmuch as they give insight into the milk situation of one of the large municipalities of the country, will be of interest as adding to the general fund of knowledge on the subject.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

The work was undertaken during the months of July and August, 1909, and carried out partly in the Bacteriological Department of the University of Chicago under the direction of Dr. P. G. Heineman of that institution, and partly in the Municipal Laboratory of the Department of Health, City of Chicago. The results of the work in both laboratories will be reported jointly, in order that from the larger number of samples thus available for study a more accurate idea of the extent to which the general supply was effected may be obtained. In addition to the reporting of results, it is my purpose to discuss briefly a few of the considerations which naturally arise in connection with the choice of the remedy to be applied.

The samples were collected by health department inspectors, and were brought in partly in original containers and partly in sterilized bottles furnished by the Municipal Laboratory. The effort was made, as far as possible, to deliver the samples to one of the laboratories within a few hours of the time of collection. It was arranged that the dairy inspectors working in the neighboring country districts should submit samples from the country shippers to the Municipal Laboratory. In addition, a milk inspector was detailed within the city limits for collection of market samples from depots, stores, wagons, etc., with the idea of covering, in as representative a manner as possible, all types of places in which milk is sold in Chicago. Samples collected within the city limits were delivered to the Bacteriologic Laboratory of the University of Chicago.

The technic employed in the laboratory at the University of Chicago was as follows: Three hundred c.c. of the sample were centrifugalized for thirty minutes at a speed of about 1,200 revolutions per minute. The layer between the cream and the sediment was then removed by means of a sterile pipette and the sediment and cream thoroughly mixed. This mixture was diluted with sterile saline solution to an amount sufficient for the injection of three guinea-pigs, using from 1 c.c. to 2 c.c. for each injection. All inoculations were made subcutaneously in the abdominal wall, the syringe being cleaned and sterilized by heat after the injection of each specimen of milk. The pigs were kept in clean cages and observed for a period of three months. Animals showing glands at the end of six weeks were separated from the others. Tuberculosis was determined by the gross lesions and by smears prepared from the affected organs. The same general method was followed at the Municipal Laboratory of the health department with no essential differences in detail, except that one animal instead of three was used for each specimen. In the Municipal Laboratory the gross autopsy findings were confirmed by demonstration of the tubercle bacilli in stained sections of the organs, the slides of which are now on file in the health department. It is to be noted, however, that, inasmuch as the clinically negative animals were not subjected to autopsy, but in both laboratories were allowed to live and be used for other purposes, the results of the series must be reported as minimum findings only. No cultural studies were attempted to determine the presence of human and bovine types of the organism.

From a strictly scientific point of view, it is to be regretted that cultures were not made from the organs to exclude the possible presence of Rabinovitsch butter bacillus. It so happened that the autopsies fell due at a time when the laboratories were flooded with other work, and therefore it was necessary to omit this detail for lack of available time. Practically, however, it is our belief that the positive findings here reported may be considered tuberculosis. The autopsies were in every case well marked and typical, and the findings agree well with the results of observers in other cities in the United States.

Incidentally in connection with the autopsy of the animals, it was decided to mount a few of the guinea-pigs by the Kaiserling method for purposes of exhibition. The value of such exhibits in the fight for purer milk soon became evident, and I believe, should not pass without mention, inasmuch as the suggestion may be of use to others who may contemplate the institution of a similar educational campaign. In the conduct of such a campaign, it is very necessary to have at one's command arguments which are convincing to laymen, many of whom are still doubtful as to the existence of bacteria, and most of whom find it difficult to understand how milk, which is perfectly sweet and pure to all appearances, may still be unfit for use and dangerous to health. In this connection it is hard to conceive of a more concrete object-lesson for the milk-dealer or legislator than to present for his inspection a guinea-pig which has been killed by the milk he is feeding to his children. A normal guinea-pig should also be mounted for comparison, in order that the marks of the disease in the tuberculous specimens may be clearly apparent to any observer.

The total number of milk samples examined in the two laboratories was 163. Of these, fifty-one caused the death of all the animals injected from acute infections within three weeks, before diagnosis of tuberculosis was possible. Eliminating these as lost, there remain one hundred and twelve available for the series, of which ten, or 8.9 per cent., proved tuberculous. Of 144 samples of raw milk, forty-nine were lost within three weeks, leaving ninety-six available for consideration. Of these, ten specimens, or 10.5 per cent. were found tuberculous. Of nineteen pasteurized samples, two were eliminated, leaving seventeen for consideration. None of the pasteurized samples caused tuberculosis in the animals injected.

	No. Samples.	All Animals Died in Three Weeks.	Available for Series	Per Cent. Found Tuberculous.
Total	163	51	112	8.9
Raw	144	49	95	10.5
Pasteurized	19	2	17	0

With regard to results of other observers, up to the year 1908, a very complete report has been published by Trask[1] of the U. S. Public Health and Marine-Hospital Service, covering chiefly the work of European experimenters. More recently the results of several American observers have been added to the list. Hess,[2] in 1909, examined 107 samples of market milk in New York City with the result that seventeen, or 16 per cent., were found to contain tubercle bacilli; Anderson[3] examined 223 samples taken in the city of Washington and reported sixteen, or 6.72 per cent., as positive. Mohler[4] has examined seventy-three samples with positive findings in two cases, or 2.7 per cent. The Bureau of Animal Industry[5] reports two positive out of thirty-six examined, or 7.7 per cent. Goler[6] reports about 5 per cent. of the milk-supply of Rochester, N. Y., infected,

1. Trask, J. W.: Milk and Its Relation to Infectious Diseases, THE JOURNAL A. M. A., Oct. 31, 1908, p. 1491.
2. Hess, A. F.: The Incidence of Tubercle Bacilli in New York City Milk, THE JOURNAL A. M. A., March 27, 1909, p. 1011.
3. Anderson: Jour. Infect. Dis., 1908, v, No. 2, p. 107.
4. Mohler: Bull. Hyg. Lab., U. S. P. H. and M.-H. S., No. 41, p. 493.
5. Hyg. Lab., U. S. P. H. and M.-H. S., No. 56, p. 551.
6. Goler: Jour. Am. Pub. Health Assn., 1910, xx, 95.

but does not state the number of samples examined. The incidence of tubercle bacilli in the milk-supplies of American cities, as far as obtainable, is therefore represented by the following figures, which include the results reported in this paper: Total number of samples examined, 551; total found positive, forty-six; per cent. positive, 8.3.

Without entering into the question of the relative prevalence in human subjects of the human and bovine types of infection, which has been extensively discussed in recent literature,[7] I believe it is safe to say that the problem of tuberculosis in milk-supplies is of sufficient importance to warrant immediate steps for its eradication. Obviously it is desirable and in many instances has been proved practicable to eliminate tuberculous animals from dairy herds by means of the tuberculin test, followed by strict isolation or slaughter of the reacting animals, but this process requires time and also strict legislative support. The difficulties of its accomplishment increase enormously with the size of the community affected and the extent of the dairy districts involved. It has not as yet been proved practical in connection with milk-supplies of large municipalities. But granting its desirability and practicability, it is obvious that the public is entitled to protection during the interim required for obtaining the necessary legislation and enforcing such measures when obtained, both of which must necessarily be slow processes. Briefly stated, there is need of immediate protection of milk-supplies, while the more ideal, but necessarily slowly operating measures are being carried out. Such an immediate safeguard is to be had in compulsory pasteurization.

In Chicago the situation is being met in the following manner: The ordinance of Jan. 1, 1909, provides that all milk sold in Chicago, beginning Jan. 1, 1914, shall be obtained from tuberculin-tested cows. During the interim of five years between Jan. 1, 1909, and January 1, 1914, milk not obtained from tuberculin-tested cows may be sold, provided the said milk is pasteurized according to the rules and regulations of the department of health. Under this ordinance about 54 per cent. of the milk sold in Chicago is now pasteurized and 24 per cent. is tuberculin tested. Before the close of the present season, if existing plans are carried out, the remaining 22 per cent. will be pasteurized, and also much of the tuberculin tested product will be pasteurized. During the summer of 1909, when about 30 per cent. only of the milk was pasteurized, strict enforcement of the ordinance being at that time impossible because of administrative difficulties involved, a decrease of 521 was noted in the deaths reported among children under one year from diarrheal diseases. The average bacterial count of raw milk in 1909 was 5,547,502 per c.c.; of pasteurized samples taken from plants, less than 200,000; of pasteurized samples taken from all sources including the output of plants not yet under satisfactory control, and also street samples, many of which had been kept in stores over night, was 944,000 per cubic centimeter. Results in 1910, so far as obtainable, show a greater difference in favor of pasteurized milk, and seem to indicate that the control of pasteurization is becoming more effective. There is still the problem of preventing the practice prevailing in some retail establishments of selling left-over samples from the previous day's delivery. In my opinion this one detail is responsible for most of the high counts obtained in pasteurized milk and tends to hold the average bacterial counts far above what they would otherwise be. The correction of this error is the next important problem which must be undertaken in the control of the situation.

It may be well to add a word as to the special applicability of pasteurization as an immediate safeguard to the milk-supplies of large cities. That it is effective in the prevention of milk-borne tuberculosis is fully conceded, but the milk situation in large cities involves so many other factors that tuberculosis of necessity comes to be regarded as only one among many sources of danger, several of which are more important from a public health standpoint. In a large city there must always be present the element of distance between the producer and consumer. Contingent on this necessary condition are the thousand and one sources of contamination occurring as a result of multiplicity of handling, time consumed in transit, improper cooling during transit, etc., all of which factors tend to multiply enormously the common polluting agencies to which milk is subject. The final product, which reaches the consumer, may therefore be dangerous from the standpoint of five or six groups of diseases, of which tuberculosis is probably not the most important. In order of their importance I should enumerate these as follows: First, and by far the most deserving of attention, is the group of infantile diarrheal diseases, which are responsible for about one-third of the death-rate among children under 2 years in our large cities. As to the bacteriology of these conditions we have little satisfactory knowledge, but the evidence furnished by vital statistics is convincing in establishing the important relation of milk thereto. Second is typhoid fever, the relation of which to milk-supplies is now well understood. Third in rank is tuberculosis. Fourth is scarlet fever. Fifth is diphtheria. Sixth is a group of miscellaneous affections not particularly important in this country, such as cholera, foot-and-mouth disease, milk-sickness and others.

As tuberculosis may be eradicated by strict application of the tuberculin test, so may these other infections be eradicated by the strict observance of sanitary rules in the production and handling of milk. But the enforcement of such observance, as in the case of elimination of tuberculosis from herds, is a time-consuming proposition, involving an educational campaign and the development of an adequate inspection system. The public is entitled to immediate protection, while the process is going on, and for this immediate protection we must turn again to pasteurization. There is certainly no one other agency of purification of milk-supplies which is of such wide applicability. That compulsory pasteurization is practicable for towns and cities under proper supervision by health authorities will, I think, soon be established and generally recognized from the experience of the City of Chicago during the past eighteen months.

7. An excellent summary by Moss: Bull. Johns Hopkins Hosp., February, 1909, xx, No. 215; Park: Tuberculosis Congress, Washington, D. C., 1910.

ABSTRACT OF DISCUSSION

Dr. F. O. Tonney, Chicago: In reply to a question that has been asked: The bacterial counts here reported were all made on plates which had been incubated at 20 degrees C. for five days. As has been pointed out by Dr. P. G. Heinemann of the University of Chicago in a recent publication, this method gives higher bacterial counts in milk than does the method more commonly used in which the temperature of incubation is 37 C. and the time of incubation 48 hours. For

this reason the count of 200,000 probably represents a higher result than would have been obtained by the less rigorous method in more general use. The figure of 200,000 per c.c. represents an average of all plants inspected, and of course includes counts made on the product of pasteurizing plants not yet under satisfactory control, the purpose of the inspection being primarily to correct any errors noted in the management of the establishment.

I think, therefore, bearing in mind the two points above mentioned, that we may consider 200,000 per c.c. a very good figure, especially in view of the great difficulty involved in the enforcement of such an ordinance so soon after its passage. I do not wish to be interpreted as saying that a bacterial count of 200,000 per c.c. on an individual sample indicates a safe product, but I believe that this figure, representing as it does an average on samples from all plants both good and bad, is a satisfactory figure for the first year of the life of the ordinance. Probably the average for the second year will show improvement.

DR. W. A. EVANS, Chicago: There is but one way to answer that question; and that is, that 200,000 at the pasteurizer's side is not a satisfactory bacterial count. The usual bacterial count at the pasteurizer's side was around say a thousand—somewhere in there. A great many pasteurizers just started up last summer; and some of them run high. You see how one of them that would run quite high, would pull up the average. Whatever method of counting was employed, 200,000 would be an unsatisfactory count.

PATHOLOGY AND TREATMENT OF ALVEOLAR ABSCESS

AND A PLASTIC OPERATION TO CLOSE NASO-ORAL FISTULA AND A NEW OPERATION FOR MANDIBULAR NECROSIS *

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The capital operation of dentistry is devitalizing pulp and filling of the root canals, as an abdominal section or the opening of an important joint is the capital operation of surgery.

If the peritoneal cavity or synovial membrane is infected during an operation, serious and dangerous inflammatory processes follow; infections of the former in many instances result in death, and infections of the latter result in ankylosis and even amputation. It is possible for the general surgeon to perform the operations without mortality only because of the great care exercised by him preparatory to and during the operation. On the other hand, the most delicate operation in dentistry, requiring the most technical skill as well as demanding perfect asepsis in its practice, is the devitalizing and extracting of pulps and filling these cavities. If infection occurs on account of carelessness on the part of the dentist, the too common alveolar abscess is the result. Alveolar abscess, or the so-called pus sac so frequently found on the apex of a tooth after extraction, is the forerunner of 90 per cent. of all the destructive diseases of the maxillary bones.

Fig. 1.—The most common alveolar fistula of the maxilla. Usually persists for years until the tooth is extracted.

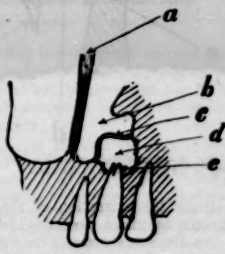

Fig. 2.—This represents the method of establishment of naso-oral fistula; a, nasal septum; b, nasal cavity; c, membranous floor; d, abscess cavity; e, denuded root of tooth.

SERIOUS CONSEQUENCES OF ALVEOLAR ABSCESS

The pathologic changes which occur in the so-called alveolar abscess begin at the apex of the root of a tooth. The first change is quite small, beginning in the form of an infiltrate, which later liquefies. This change involves the tissues immediately around the apex of the root either destroying or promoting the absorption of the bone. The process of the destruction is in the direction of the least resistance from the root involved, which experience demonstrates to be smaller on the buccal side of the alveolar process. The destruction continues to the surface of the bone when the external manifestation of the abscess is present, namely, a fluctuating tumefaction on the external surface of the bone. This continues to destroy tissue in proportion to its activity, which depends on the variety of germ responsible for the disease.

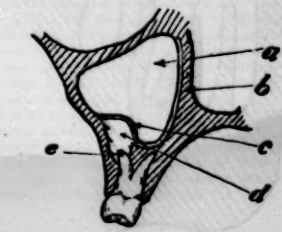

Fig. 3.—Abscess; a, antral cavity; b, naso-antral septum; c, membranous floor of the antrum; d, abscess cavity ready to rupture into the antrum; e, root of tooth denuded and cause of disease.

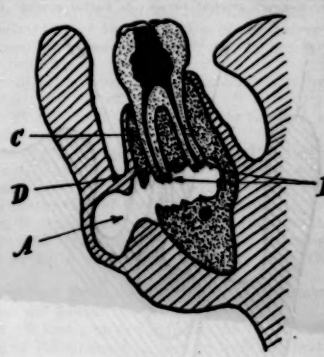

Fig. 4.—Alveolar abscess of the mandible; A, abscess cavity; B, roots of tooth; C, external alveolar plate to be removed with tooth; D, point of incision.

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

The symptoms are well known to every dentist. Pain is in proportion to the rapidity of the course and, as a rule, is not prominent, a slight ache of the face being the most common characteristic.

If the root of the tooth affected is in proximity to the maxillary sinus, this cavity will be infected, resulting in antral disease. Occasionally when the disease is in the mandible in proximity to the central canal a great portion of the bone will become involved before the surface is reached and the ordinary fluctuating cyst described above is not found.

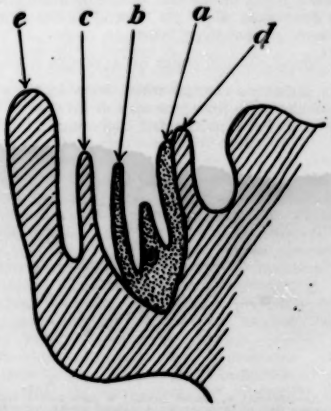

Fig. 5.—The above illustration represents Case 1 described in the text; a and b, alveolar process on two sides of tooth; b, denuded; c, detached gingival tissues; d, lingual gingival tissues; e, lip.

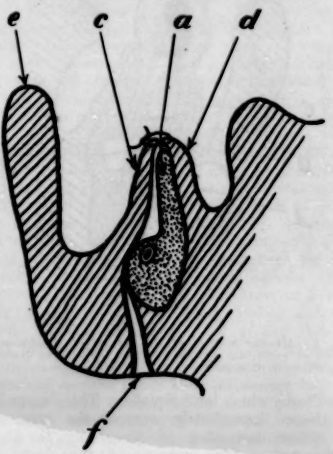

Fig. 6.—The above illustration shows method of obliteration of a, alveolar cavity; a and b, alveolar process; b, bone has been removed; c and d, approximated and sutured; e, lip; f, external drainage.

In many of these abscesses the bony floor of the antrum is destroyed, yet the antral cavity is not entered because the membranous floor is still intact. If the distention of the abscess cavity is great or if it continues for a considerable length of time, the nasal or antral cavity will be entered and in the former instance the antrum becomes infected, and in the latter instance a nasal fistula established.

When a fistulous opening is established from one of these abscesses, the orifice may be through the alveolus, the external or internal surface of the bone. In cases of fistulas communicating with a cavity in which there was the root of a tooth denuded of its periosteum and apical circulation I have not seen the opening close without the extraction of the tooth. This applies to chronic openings persisting for three or more months.

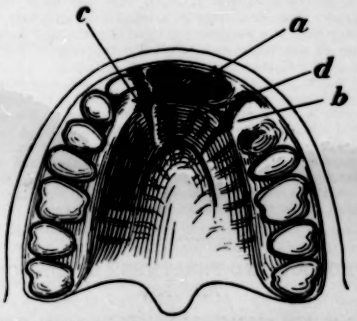

Fig. 7.—The above illustration represents method of closing naso-oral fistula; a, opening into nose; b and c, incisions; d, flap to be turned upward and outward over a.

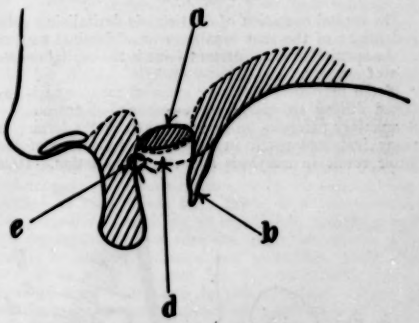

Fig. 8.—Completed operation; a, fistula with flap over it; d, flap in new position; e, sutures.

An alveolar abscess of the mandible is rather common. It is usual, also, for the abscess to break through the cheek rather than into the oral cavity. It is all a question of dependent drainage. The reason that alveolar abscesses of the superior bone repair better than those below is that the drainage above is superior.

The second serious consequence of alveolar abscess is a more grave variety of destruction of the maxillary bone, when the nasal floor, membranous and osseous, is destroyed, leaving a naso-oral fistula. In this condition we have a very troublesome complication, making it necessary for the patient to keep the opening packed con-

stantly, requiring removal after meals and withal leaving the mouth in a very unsanitary condition.

The underlying factor in nearly all of these cases is syphilis and, after the constitutional treatment has been pushed until all granulating surfaces have repaired, it is very desirable to close the opening permanently.

OPERATION AND CASE REPORTS

An operation which I have done in several instances and which has accomplished this purpose may be described as follows: Assuming that the labial gingival structures are completely destroyed and that the lingual periosteum and mucous membrane extend well down to the normal line, two incisions are made through the lateral structure, either with scissors or knife, back up to the orifice of the fistula and far enough back on the two sides to make the tongue wide enough to cover the opening. The margin of the flap thus made is freshened and the corners made round. The next step is to freshen the orifice of the fistula, denuding well the internal surface of the lip for a distance equal to the thickness of the flap. The flap is now turned up over the orifice of the fistula and sutured there with silkworm gut. In the three cases in which the operation has been performed (two of which are described below) the results have been perfectly satisfactory.

Fig. 9.—Taken after operation in Case 1.

CASE 1.—*Patient.*—A man, aged 50, with infection of the mandible. He had lost all of his lower teeth but three, and the cavity included practically all of the mandible on its external surface, the bone being bare throughout. The alveolar process, on its external margin, including the cavities left by the extracted teeth, stood out perfectly nude in the floor of the mouth. It had required just a month for the case to advance to the condition described.

Operation.—This included a complete removal of the external half of the mandible from the second molar on the right side to the second bicuspid on the left, through the roots of the teeth and to external inferior margin of the bone. This left the internal alveolar plate intact throughout with the periosteum undisturbed. The cavity was mopped out with pure tincture of iodin. The usual method of procedure would doubtless have been to pack the entire cavity, with the hope that the bone would heal by being granulated over from later approximation of the external periosteum. It was decided, however, that such an extensive cavity should be immediately obliterated. Dependent drainage was absolutely necessary if this was to be accomplished; hence an incision was made from the lowest point of the cavity in the median line through the skin under the chin large enough to admit a rubber drain the size of a lead-pencil. The next step was to stitch together with catgut the labial and buccal gingival margins, thus closing off the field of operation entirely from the oral cavity.

Postoperative History.—To my intense gratification the two gingival margins did completely unite and not a drop of pus was ever found in the oral cavity. The drainage established from below was quite sufficient to carry off the small quantity of reparative lymph and detritus and the patient was practically well in ten days after his operation.

CASE 2.—*Patient.*—A man, aged 30, had extensive infection of the mandible beginning from an infected tooth. Seven or eight teeth had been extracted and the entire external surface of the mandible was bare. The oral cavity was welling full of pus from the extensive suppurating area. The disease had developed rapidly and was running an acute course.

Operation.—This was practically the same as that performed on the above case. After the removal of the external half of the bone and disinfection of the wound, drainage was established through the skin under the chin. The gingival margins were approximated by catgut sutures.

Postoperative History.—The openings did not unite throughout as in the former case; two or three openings communicated with the mouth. This case was no doubt syphilitic and constitutional treatment was administered before the disease could be controlled. It was several months before the system was impressed with the medication and the wound closed.

CONCLUSIONS

1. Dentists should realize the seriousness of the most frequent operation they perform, namely, that of devitalizing and extracting pulps, since infection and serious bone destruction originate from this cause.

2. Destruction of the bony floor of the antrum does not necessarily mean perforation of the membranous floor or infection.

3. An alveolar fistula leading into a cavity where a considerable portion of a tooth is exposed requires extraction of this tooth before complete recovery can be expected.

4. Persistent headaches and general reduction in health are frequently caused by very insidious alveolar abscesses.

5. In destruction of the mandible, requiring removal of bone, it is advisable to establish drainage through the chin and approximate the gingival margins with sutures so as to shut off a pus cavity from the oral cavity.

6. Naso-oral fistula may be closed by a membranous flap from the roof of the mouth.

7. In all suppurative conditions of the mouth pure tincture of iodin should be used as a disinfectant.

624 Pittsburg Life Building.

ABSTRACT OF DISCUSSION

DR. G. V. I. BROWN, Milwaukee: Dr. McCurdy, being a skilful surgeon, has simply applied correct surgical plastic methods to oral operations, and that, I am sorry to say, is something which is not always done in this work. The way Nature is obliged to help out in the closure of openings by granulation and that sort of thing is a matter to be deprecated, and in a corresponding way any suggestions leading to correct surgical closure are in the right direction.

DR. WILLIAM C. FISHER, New York: In this synopsis a statement is made that probably one-half the cases of necrosis of the maxillary bones are due to syphilis. I think probably one thing is lost sight of, and that is that the administration of mercury for syphilis very often starts up symptoms for

which the disease is blamed. We can get the very same symptoms from the administration of mercury that are caused by syphilis.

Dr. James E. Power, Providence, R. I.: To me it seems unnecessary to make an incision such as described by the essayist. As I understand the operation, the doctor draws the flap across the opening at the top, within the oral cavity, and then makes an incision below and on the external surface for drainage. I do not think that one is justified in making an external incision on the face, and surely not in a case like the one described. I do not quite see any disadvantage in proper drainage through the mouth, even in view of the fact that there may be bacteria present which are capable of causing trouble in the alimentary canal. With the external incision, even if he gets union within the oral cavity by first intention, some days will elapse before he gets a sufficiently strong union to prevent back drainage. I believe that the term syphilis is getting to be used in the medical profession about the same as neuralgia in the dental profession. It seems that about every condition which is beyond the diagnostic capabilities of the practitioner is pronounced syphilis. I am conscious of the prevalence of syphilis, but I believe that many mistakes are made. From my experience I would not care to accept the statement in the matter as final, that over one-half the cases of necrosis of the superior maxilla were due to syphilitic conditions. A good many times the argument for the diagnosis of syphilis is simply that the condition improved under potassium iodid. We all know that many conditions will improve under potassium iodid. Without a good history the only true test is the Wassermann reaction, and that is very seldom resorted to by the general practitioner because it is a complex process and requires the skill of a laboratory expert. Dr. Fisher says that he believes that many of the cases of para-syphilitic conditions are due to the drugs. I believe, however, that all conditions that come from treated syphilis are from the disease and not from the drug. We might get a profuse flow of saliva from too much mercury, but I do not believe that we get necrosis of bone, gummata and other pathologic manifestations which are associated with syphilis and which are erroneously attributed to the use of the drug. I believe 100 of the para-syphilitic conditions are due to the disease where but one is due to mercury. My authority for this statement is Dr. Charles M. Whitney of Boston. I am speaking of cases properly treated. Of course, if a practitioner continues to use mercury after symptoms show that the drug should be suspended he is likely to be confronted with serious conditions. Salivation was used as the indicator in the early days of the treatment of this disease, but that day has passed. They are treating syphilis more scientifically to-day. It is seldom if ever that a syphilologist will permit a patient to reach the stage of profuse salivation.

Dr. Eugene Talbot, Chicago: I have failed to see in any work the proper pathology of alveolar abscess. While I may not be correct, I have an idea of the process taking place and I may be able to add some point which has not yet been recorded, and I have made a number of drawings on the board to give a general idea of what I intend to present. Most individuals who have alveolar abscesses are run down. In case of syphilis, mercurial, or any other drug poisonings, there is a want of tonicity of the nervous system, in all cases, we may say, due to irritation. When irritation takes place the peri-dental membrane becomes involved and inflammation is set up, which causes pressure pain around the root of the tooth. With this pressure, inflammation is set up in the arteries of the bone, the Haversian canals and in the vessels of von Ebner. That inflammation causes absorption of the bone proper, leaving the fibrous tissue (trabeculæ) as you see it in the diagram on the board. This might be likened to the plastering on the side of a building. If it were not for the lathing the plastering would not stick. If the lathing (trabeculæ) be removed, then the alveolar tissue or bone cannot be restored. The extent of formation of this abscess depends entirely on the amount of irritation and also on the weakened condition of the patient. It may go on, extending down into the bone tissue through these canals, and the bone proper (that is, the bone-cells which are held together by fibrous tissue) is absorbed, leaving the fibrous tissue intact. This fibrous tissue becomes organized and forms the sac of the abscess. The inflammation extends through these Haversian canals and produces absorption outward, just as when pebbles are thrown into a small lake, the waves enlarge and spread outward, and if you throw several pebbles into the lake at different localities these waves extend until they coalesce. The principle of bone absorption is the same. Absorption goes on around each Haversian canal until the entire area is involved, and we not only have absorption going on in the Haversian canals, but the vessels of von Ebner become involved. These are not so large as the Haversian canals, so the process of absorption takes longer, but the principle is the same. It burrows right through the bone.

Dr. Frederick Noyes, Chicago: The absorption of bone under the conditions just stated may be considered as a response to a mechanical condition of pressure, which is the result of the exudate which comes from the inflammation, and the absorption occurs in all the spaces of the bone in the neighborhood of the inflammation.

Dr. C. W. Harned, Iowa City, Iowa: There is just one word I would like to say as to closing of these wounds. I think anyone who has made a practice of closing wounds to prevent secretions of the mouth getting into them will never give it up. I never fail to close up a cavity if possible, after removing all necrotic tissue. I think such wounds will seal in 36 hours, so that no saliva will get into the wound. Pus is rarely present after all the necrotic tissue has been removed. I want to commend the essayist for making this point in the matter of drainage.

Dr. James E. Power, Providence, R. I.: The last speaker states that in his antral diseases he cleans the antrum and then closes the opening through which he operated. In all the antral cases which I have treated I have been obliged to follow the currettage treatment with irrigation. I would like to know how he irrigates if he closes the opening, or what procedure he follows.

Dr. C. W. Harned, Iowa City, Iowa: I prefer going in above the bicuspids, when I think disease involves the antrum. Thorough ventilation as well as drainage through the nose on that side is important. I make an opening through the internal wall of the antral cavity into the meatus, after the antrum is cleansed. Close up the mucous membrane on the outside after you have packed. Remove packing the next day through the nostril. Always close mucous membrane on the outside immediately, and irrigate as little as possible. I find that when I irrigate the least the patients get along the best. If all the pus and necrotic tissue is removed, and the cavity sterilized, very little irrigation will be found necessary.

AN IMPROVED METHOD OF GENERAL ANESTHESIA IN HEAD-SURGERY BY MEANS OF GLASS NASAL TUBES *

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Anesthetist to the Harlem Hospital, the General Memorial Hospital and the Lying-In Hospital; Fellow New York Academy of Medicine, etc.

NEW YORK

Anesthesia for head-surgery certainly presents difficulties for the anesthetist. In order to insure greater safety to the patient and less interference of the anesthetist with the surgeon during an operation on the head, many inhalers have been produced. Nasal tubes for such purposes of anesthesia were introduced in 1908 by Dr. Edwin Pynchon of Chicago and Dr. Stuart B. Blakely of New York independently. Since one of these instruments allows the entrance of too much air

* Demonstrated before the Harlem Medical Association, May 14, 1910, and the Valentine Mott Medical Society, May 24, 1910.

and the other does not provide sufficient air, I have devised an instrument which experience has proved to be more practical than any other on the market.

My apparatus consists of two glass tubes (Fig. 1, A and B) so bent that each will properly fit a nostril. These tips are connected with the mechanism which supplies the anesthetic vapor by means of two soft rubber tubes (Fig. 1, C), joined together at the supply end by a glass Y, which also connects them with the supply tube (C) itself. They are furnished in three different sizes in order to make the apparatus adapted to nostrils of different shapes.

Furthermore, the apparatus which I use for continuing the anesthesia is different from that employed by either Dr. Pynchon or Dr. Blakely. I induce anesthesia in the usual way and then introduce the glass

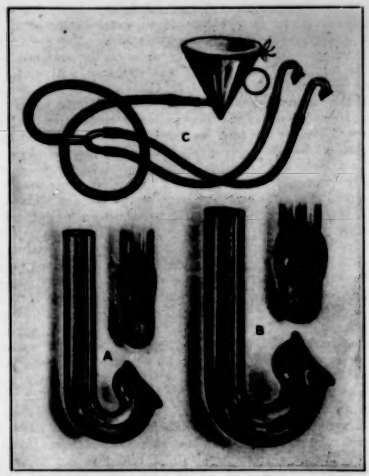

Fig. 1.—Glass nasal tubes for general anesthesia in head-surgery (A and B); connected with supply tube (C).

nasal tips into the nose. For convenience these may be held in position by means of a small piece of adhesive plaster placed across them transversely on the forehead (Fig. 2). The anesthesia is then continued by supplying the vapor in one of four ways: first, by the Crile method, that is, by the use of a funnel and tube (Fig. 1, C), on the stretched gauze of which ether is dropped; second, by the one-bottle Junker apparatus, as used so commonly in England for head-surgery; third, by the two-bottle modification of the Junker apparatus, as used by Dr. T. W. Brophy of Chicago for work on cleft palates; fourth, by the Gwathmey three-bottle modification of the Junker apparatus. By each of the Junker methods anesthesia vapor is pumped into the nostrils by means of suitable bulbs.

I much prefer the Gwathmey apparatus, as it allows the use of both ether and chloroform, either singly or combined in any proportion, with the greatest safety and ease.

The following are some of the advantages of the glass nasal tips over the long rubber tubes which have been in common use:

1. They are more safely and easily introduced into the nose.
2. They allow the anesthetic vapor on its way to the lungs to become warmed by the nose.
3. Successful use of the instrument is in no way interfered with by a deformed nasal septum or exostosis.
4. They do not cause nasal hemorrhage.
5. They cannot become obstructed with blood and mucus.
6. They remain in position much better than rubber tubes.
7. They are easier to clean and sterilize.

A method very similar to mine has been successfully employed at Roosevelt Hospital in New York City,

Fig. 2.—Glass nasal tubes for anesthesia in use.

where it is now entirely used for head-surgery in place of rectal anesthesia.

The glass nasal tips, as above illustrated, are certainly a most excellent means of producing a safe and continuous anesthesia in head-surgery, not interfering with the surgeon.

1925 Seventh Avenue.

REPORT OF A CASE OF MIDDLE MENINGEAL HEMORRHAGE ACCOMPANIED BY ACTUAL HEMIPLEGIA: OPERATION, RECOVERY

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WASHINGTON, D. C.

The occurrence of middle meningeal hemorrhage, unless accompanied with severe depressed and compound fractures of the skull, is not so frequent but that the following case may be of interest:

History.—About midnight of April 4, 1909, I was called to see a workman who, I was told, was suffering from a

scalp wound inflicted by means of a bricklayer's spirit-level, in the hands of a fellow-workman. On arriving at the scene of the trouble about half an hour later, I found the patient lying on the floor in an unconscious condition. His breath had a very strong odor of alcohol.

Examination.—There was a contused scalp wound about three inches long in the left temporal and parietal regions, which was bleeding profusely. The pupils were equal and reacted to light. On further examination I concluded that the patient was suffering from concussion of the brain and acute alcoholism. I was informed that the man had been drinking heavily before the trouble occurred. The wound involved the skin of the scalp and the superficial fascia. The occipito-frontalis muscle was contused but not divided. Superficial examination presented no local evidence of depressed or other fracture of the skull at the site of injury. In about one-half hour the patient began to show indications of returning consciousness—he had begun to move both legs and arms, but was unable to sit up. He groaned considerably but was unable to speak. I was at first tempted to suture the scalp wound and await development of symptoms, but after reconsidering I decided to explore the bone at the site of the injury for evidence of fracture. This was done, without an anesthetic, about one hour after the occurrence of the injury.

On exploring the bone a fissured fracture involving the left parietal and temporal bones was found. There was some slight oozing of blood from the line of fracture. As there

Patient operated on for middle meningeal hemorrhage, accompanied by actual hemiplegia; from photographs taken on the seventeenth day after operation.

did not appear to be any depression of the bones or evidences of compression, it was decided to close the scalp wound and await development of possible pressure symptoms. As the line of this fissured fracture crossed the branches of the middle meningeal artery, arterial extravasation was feared. The patient vomited several times after being put to bed, and voided urine involuntarily several times during the night. At 8 o'clock the next morning the temperature was 99.2 F.; pulse 76, full, regular and strong; respirations 22. The patient was in a semi-conscious condition, could not speak, but would groan occasionally. Breathing was rather stertorous. The patient moved the left arm and leg occasionally. There was actual hemiplegia of the right side of the body, leg, arm and face. When the arm and leg in question were raised they dropped lifeless. The paralysis of the right side of the face was well marked. The condition of the left side of the face was confusing; the left facial nerve was believed to be involved, as it was afterward found that the line of fracture extended to the base of the middle fossa, and that the facial nerve was probably implicated in the fracture. No twitching of the muscles of the right side of the body was observed, neither were there any epileptiform attacks. The pupils were equal, moderately dilated, and reacted sluggishly to light. The tongue could not be protruded. The patient could not take any nourishment; voided urine involuntarily. He did not appear to understand anything said to him. As the focal symptoms were typical of an extravasation from the branches of the left meningeal artery, it was decided to operate on him at once.

Operation.—Under chloroform anesthesia an incision was made enlarging the scalp wound, and the anterior branch and trunk of the middle meningeal artery, left side, were exposed by trephining. On removing the button of bone, a blood clot immediately bulged into the wound. This was cleaned out gently, and there at once occurred profuse bleeding from the anterior branch of the artery, which was controlled with considerable difficulty. It was necessary to open the dura, pass a grooved director into the opening and ligate the artery by means of a small, curved needle and fine catgut. The trephine opening was extended by means of a rongeur forceps to the posterior branch of the artery, where there was also considerable bleeding. A large amount of blood-clot was removed. The dura had been found intact, and was compressed inward, with the cerebral cortex, for about two inches. When the dura was opened the cerebrospinal fluid was found to be clear. The cerebral cortex presented no macroscopic evidence of injury beyond compression. There was no evidence of subdural hemorrhage. The dura was closed with fine catgut sutures. The clot covered the dura over the entire motor area of the cerebral cortex of the left side. The wound was irrigated with hot physiologic salt solution until all of the clot had been removed. Soon the brain began to expand, and gradually assumed its normal condition again. The patient's respiration and pulse improved greatly as soon as the blood-clot was removed. As the patient had lost considerable blood, a liter of physiologic salt solution was given at this time intravenously which greatly improved the pulse. The line of fracture was found to extend downward to the base of the middle fossa of the skull. The wound was closed with silkworm gut sutures. Several strands of silkworm gut was the only drainage employed. Only enough chloroform to keep the patient barely under was given, and this was stopped as soon as possible. While the wound was being sutured the patient began to regain consciousness, and moved the arm and leg which had been previously paralyzed.

Postoperative History.—About midnight of the same day the patient regained complete consciousness and spoke for the first time since the injury. He had complete use of his paralyzed side, although the muscles were slightly weaker for about five days than those of the sound side. The patient made an uneventful recovery. Wound healed completely and he was discharged from the hospital seventeen days from the time he was injured. The photographs were taken the day of discharge from hospital. I told him not to go back to work for about one month, and was surprised to find him engaged at his trade of bricklaying on one of the buildings about one week after his discharge from hospital. I heard from him about five months after the injury and he had had no further trouble.

This case is of special interest on account of the actual hemiplegia which occurred. To show that this is not a frequent occurrence I quote from "Surgery of the Head," by Dr. Cushing, in Keen's "System of Surgery:"

> Instances of actual hemiplegia from an extradural hemorrhage have also been recorded, but they must be rare, since the centers for the lower extremity lie so far away from the part at which an extravasation of this sort is likely to arise, that a clot large enough to implicate the upper ridge of the hemisphere would in all probability either lead to such deep coma that symptoms of hemiplegia could not be appreciated, or else would cause death before they were appreciated.

Kinds of Nystagmus.—Each canal produces a nystagmus in its own plane and to its own side. As there are three canals, there are three kinds of nystagmus, or nystagmus in three different planes, horizontal, superior and posterior.—J. S. DeMuth, in *Journal of Ophthalmology and Oto-Laryngology.*

THE ETIOLOGY OF ACTINOMYCOSIS

THE PRESENCE OF ACTINOMYCETES IN THE CONTENTS OF CARIOUS TEETH AND THE TONSILLAR CRYPTS OF PATIENTS WITHOUT ACTINOMYCOSIS*

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BOSTON

As I have noted in a previous publication on the etiology of actinomycosis,[1] the failure of true actinomycetes to grow at other than body temperature, the lack of any convincing evidence that actinomycosis is a contagious disease and the prevailing location of the affection about the jaws and neck suggest that infection arises from within the individual and probably from the mouth.

As a result of the investigation of material from the teeth, it was shown that organisms having the morphology and staining reaction of actinomycetes could be constantly demonstrated in smear preparations (eleven cases) and in serial sections (five cases) of the contents of carious teeth in patients without actinomycosis. They

Fig. 1.—Case 9. Actinomycosis of the omentum in a guinea-pig, fifteen days after intraperitoneal inoculation with material from tonsillar crypts. Nodular tumor attached to the stomach (actual size).

are so abundant as to suggest that they play a fundamental part in dental caries. The intraperitoneal inoculation of guinea-pigs with material from carious teeth gave rise to omental tumors histologically identical with actinomycotic tissue and containing typical club-bearing actinomyces granules in three (60 per cent.) of five animals.

Following the demonstration of actinomycetes in the contents of carious teeth, material from tonsillar crypts was investigated.

I. INVESTIGATION OF THE CONTENTS OF TONSILLAR CRYPTS

1. Method.—No patients with the lesions of actinomycosis were studied. The investigated material consisted of yellowish, hard or soft masses extracted by means of the platinum loop from the tonsillar crypts of seven patients. The masses were placed in sterile test-tubes and sent to the laboratory. In addition, material expressed from the crypts of enlarged tonsils, removed by operation, was examined in six cases. These tonsils showed no other lesion than hypertrophy. All instruments used in the manipulations were previously sterilized. The method of animal inoculation, of imbedding and staining the fresh specimens and the tissue obtained from the inoculated animals was the same as in the investigation of the contents of carious teeth.

2. Serial Sections of the Fresh Material.—Serial sections of a part of the hard or soft, yellowish masses from the crypts of the tonsils were made in four cases (Cases 6, 8, 10 and M. L.[2]). Filaments resembling actinomycetes in morphology and staining reaction and similar to those in the contents of carious teeth were present in large numbers in all. They appear as an interlacing network or as colonies composed of a dense mass of organisms with radiating peripheral filaments. Club-formation was not observed. The filaments are much mixed with other bacteria. In consideration of the tendency of actinomycetes to produce wide-spread connective tissue formation in the typical lesions of the disease, it is suggested that their toxin production is a cause of hypertrophy of the tonsils.

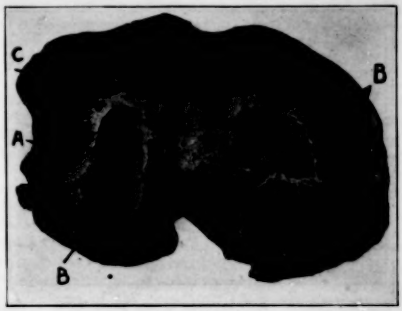

Fig. 2.—Case 9. Section through two fused nodules showing abscess formation; (A) necrotic pus cells, actinomyces filaments and bacteria; (B) actinomyces granules without "clubs;" (C) connective tissue. In other parts of the tumor (not shown in the photograph) typical club-bearing actinomyces colonies are found. (× 7 app.).

3. Animal Inoculation.—Guinea-pigs were inoculated intraperitoneally with material from thirteen cases. Three animals died of general peritonitis within twenty-four hours and are excluded, thus leaving ten cases for further consideration.

Negative Cases: Of these ten animals, post-mortem examination of three (Cases 1, 2 and 3), twenty-one days after inoculation with fluid material expressed from the excised tonsils, showed only slight omental thickening in places and serial sections were negative. A fourth animal (Case 4) inoculated with yellowish, soft material extracted from the tonsil by means of the platinum loop, showed numerous adhesions and three small nodules, one of which contained a small amount of pus. Serial sections were negative.

*This investigation was undertaken under a grant from the Proctor Fund of the Harvard Medical School.

1. Lord, F. T.: A Contribution to the Etiology of Actinomycosis: Experimental Production of Actinomycosis in Guinea-Pigs Inoculated with the Contents of Carious Teeth, Boston Med. and Surg. Jour., July 21, 1910.

2. M. L., aged 25, female. Diagnosis enlarged tonsils and chronic arthritis. Tonsils received July 28. Guinea-pig inoculated with expressed material died within twenty-four hours of general peritonitis.

Positive Cases: The six remaining animals, including one (Case 5) inoculated with fluid material expressed from the excised tonsils and five (Cases 6, 7, 8, 9 and 10) receiving injections of more solid material extracted from the crypts by means of the platinum loop, were killed within from thirteen to forty-five days after inoculation. Post-mortem examination of these animals showed from one to three grayish-white or reddish omental tumors varying in greatest diameter from 1 mm. to 1 and 0.5 cm. Serial sections of one or more of the tumors showed from one to six colonies of branching filamentous Gram-staining organisms, surrounded by a zone of pus cells of variable width, beyond which there was connective tissue in different stages of development. Radially disposed, peripheral, club-bearing filaments were demonstrated about some of the colonies in all the positive cases. In their histologic appearance, the tumors are identical with actinomycotic tissue and with the experimental lesions similarly obtained with the contents of carious teeth. The colonies of branching, filamentous organisms are typical actinomyces granules. Bacteria and foreign bodies were also found in the lesions. Moderate enlargement of the intra-abdominal glands was frequently noted, but serial sections of these glands failed to show actinomycetes.

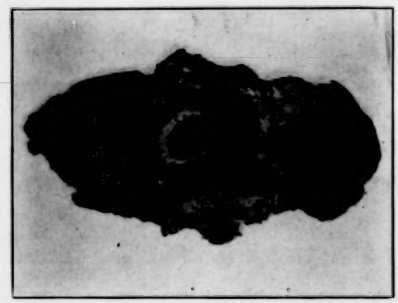

Fig. 3.—Case 7. Actinomycosis of the omentum in a guinea-pig, seventeen days after intraperitoneal inoculation with material from a tonsillar crypt. Colony of actinomycetes surrounded by a narrow zone of connective tissue. (× 20 app.).

Fig. 4.—Case 10. Actinomycosis of the omentum in a guinea-pig, fifteen days after inoculation with material from tonsillar crypts. Only one colony of actinomycetes is deeply stained. Colonies in dense connective tissue. (× 15 app.).

A brief account of the inoculation experiments in the ten cases is as follows:

GROUP I: NEGATIVE CASES

A. Animals inoculated with fluid material expressed from the crypts of excised tonsils. Killed after twenty-one days. Omentum showed only slight localized thickening. Serial sections showed connective tissue about foreign bodies, but no actinomycetes.

CASE 1.—F.M.R., female, aged 12. Hosp. No. 152875. Diagnosis, enlarged tonsils and adenoids.

CASE 2.—V.S.W., female, aged 12. Hosp. No. 11698. Diagnosis, enlarged tonsils.

CASE 3.—R.S., female, aged 12. Hosp. No. 48016. Diagnosis, enlarged tonsils.

B. Animal inoculated with yellowish soft material extracted from two crypts of a slightly enlarged tonsil by means of platinum loop.

CASE 4.—M.T.C., female, aged 35. Hosp. No. 154861. Diagnosis, pelvic adhesions. Guinea-pig inoculated August 1. Died after 13 days with symptoms of arthritis. Autopsy showed adhesions of omentum to liver and intestines. Omentum contains three nodules, the largest 3 mm. in greatest diameter. A small amount of pus expressed from a small nodule adherent to pylorus. Serial sections of adhesions and nodules show no colonies of actinomycetes.

GROUP II: POSITIVE CASES

A. Animal inoculated with fluid material expressed from crypts of excised tonsils.

CASE 5.—L.H.S., male, aged 27. Hosp. No. 154522. Diagnosis, enlarged tonsils. Guinea-pig inoculated July 28. Killed after fourteen days. Omentum shows three reddish nodules one 3 x 2 mm., the others somewhat smaller. Serial sections show one colony of actinomycetes in each nodule. "Clubs" are found about one of the three colonies.

B. Animals inoculated with yellowish, hard or soft material extracted from the tonsillar crypts by means of platinum loop.

CASE 6.—Dr. T., male, aged 25. Office patient. Diagnosis, functional cardiac murmur. Small amount of yellowish, hard material obtained from tonsillar crypts. Tonsils slightly enlarged. Guinea-pig inoculated July 21. Killed after eighteen days. Omentum shows a nodule 2 by 1 mm., containing one colony of actinomycetes and two smaller nodules containing foreign bodies. Swollen and at times bulbous filaments project in a radiate manner from the colony. A few club-bearing filaments are found.

CASE 7.—C.J.T., male, aged 24. Hosp. No. 154675. Diagnosis, acute tonsillitis. Small, hard, yellowish mass extracted from one of the crypts of an enlarged right tonsil. Guinea-pig inoculated July 30. Killed after seventeen days. Omentum shows a nodule 1 and 0.5 mm. in greatest diameter, containing a colony of actinomycetes and a foreign body (Fig. 3). The width of the colony at the center of the nodule is more than half the width of the nodule. Club-formation is well marked.

CASE 8.—A.S., male, aged 18. Hosp. No. 152742. Diagnosis, enlarged tonsils. Two yellowish masses, one 3 mm. in diameter, hard and gritty, the other 1 mm. in diameter and soft, extracted from the crypts. Two guinea-pigs inoculated August 2. One animal killed after thirteen days. On the anterior wall of the stomach, a hard, grayish, elongated tumor, 1 and 0.5 c.m. in greatest diameter and somewhat constricted toward one end. It is composed of two fused nodules. Omentum adherent to liver by a band of fibrous tissue, between which and the liver is a white nodule 3 mm. in greatest diameter. Sections of the larger mass show six colonies of actinomycetes in the larger and two in the smaller nodule. Club-formation is well marked about all the colonies. The second animal was killed after forty-five days. Similar omental tumors containing club-bearing colonies (Fig. 5) were found.

CASE 9.—L.B.W., female, aged 13. Hosp. No. 151963. Diagnosis, enlarged tonsils and adenoids. Two yellowish masses about 1 mm. in diameter extracted from the ton

sillar crypts. Guinea-pig inoculated August 4. Killed after fifteen days. Adherent to the stomach along omental attachment is a hard, grayish-white, nodular tumor, 1 and 0.5 cm. long, 12 mm. wide and 8 mm. high (Fig. 1). Omentum adherent to left kidney between which and spleen is an oval, grayish nodule 5 mm. in greatest diameter. Sections of the larger of the two masses show abscess formation occupying about a half of the diameter of the fused nodules composing the mass. The abscesses are surrounded by connective tissue (Fig. 2). They contain pus cells, actinomyces filaments and bacteria in varying proportion in different parts of the sections. In regions where the bacteria are most abundant, there are necrotic pus cells and numerous isolated and clustered actinomyces filaments with radiating peripheral filaments without "clubs." In parts of the tissue (not shown in the photograph) where bacteria are relatively few in number, typical club-bearing colonies of actinomycetes are found. These colonies are surrounded by a narrow zone of well-preserved pus cells beyond which is fibrous tissue. The appearance suggests that the great abundance of bacteria in the larger abscesses has prevented the formation of typical actinomyces granules.[3]

Fig. 5.—Case 8. Actinomycosis of the omentum in a guinea-pig forty-five days after intraperitoneal inoculation with material from tonsillar crypts. Margin of a colony of actinomycetes showing "clubs," some with central filaments and with branches. Fresh specimen. (× 750.)

CASE 10.—A.H., female, aged 7. Hosp. No. 67593. Diagnosis, enlarged tonsils and adenoids. One foul, yellowish mass about 3 mm. in diameter and several smaller masses, extracted from the tonsillar crypts. Guinea-pig inoculated August 4. Killed after fifteen days. In a mass of adhesions, between stomach, liver and several loops of intestine is a grayish-yellow nodule of an oval shape and 8 mm. in greatest diameter. Sections show five colonies of actinomycetes (Fig. 4). Only one colony is deeply stained in this section.) Club-formation is well marked.

II. SUMMARY

From the investigation of the teeth and the tonsils, it may be stated that organisms having the morphology and staining reaction of actinomycetes have been constantly found in smears (eleven cases) and serial sections (five cases) from the contents of carious teeth and in serial sections (four cases) of yellowish, hard or soft material from the tonsillar crypts of patients without actinomycosis.

Following the intraperitoneal inoculation of guinea-pigs with the contents of carious teeth (five cases) and the tonsillar crypts (ten cases) omental tumors histologically identical with actinomycotic tissue and containing typical club-bearing actinomyces granules have been produced in 60 per cent. of the inoculations in both instances.

III. BEARING OF THE FINDINGS ON THE ETIOLOGY OF ACTINOMYCOSIS

The constancy with which actinomycetes can be demonstrated in the contents of carious teeth and the crypts of the tonsil in patients without actinomycosis indicates the buccal cavity as a source of the disease. Imperfect drainage of a carious tooth, whether arising spontaneously or as the result of filling an incompletely sterilized tooth, may be regarded as favorable to the production of the disease about the jaws or neck, the root canal of the tooth being the channel of infection. Organisms derived from the teeth or the tonsil may also be implanted in neighboring tissues or find lodgment in more remote parts of the body by way of the respiratory tract or the alimentary canal. Actinomycetes have been known to penetrate the lymphatic system only in very rare instances and extension from the tonsil by way of the lymph channels is improbable.

In explanation of the infrequency of the disease compared with the numberless chances for infection, it may be noted that in five negative inoculation experiments with the contents of carious teeth,[4] organisms resembling actinomycetes were present in smears from the extracted material and it may be assumed that actinomycetes were also present in the injected material, but failed to multiply in the body of the animal. Here, as in other infections, the varying numbers and vitality of the seed and fertility of the soil doubtless determine the result in large measure.

Another factor of probable importance is the number and virulence of the organisms occurring as a mixed infection with actinomycetes. As suggested by the findings in one inoculated animal (Case 9) the infrequency of actinomycosis of the jaw compared with simple alveolar abscess may be due to rapid multiplication of pyogenic organisms at the site of infection, thus preventing actinomycetes from taking root in the tissue and developing typical club-bearing colonies.

This investigation was carried out in the Clinico-Pathological Laboratory of the Massachusetts General Hospital. I am indebted to Dr. J. H. Wright for his encouraging interest and to Drs. J. L. Goodale, D. C. Green and W. F. Knowles, of the Throat Department, for their kindness in placing material at my disposal. The photographs were made by Mr. L. S. Brown.

305 Beacon Street.

Paget's Disease of the Nipple.—E. Jonas (*Interstate Medical Journal*) states that, according to recent investigations, Paget's disease of the nipple is cancerous from the very first, rapidly involving the skin and the breast itself. This disease demands the same prompt attention and radical surgical interference as is accorded all other cancers of the breast. There is a striking parallelism, he declares, between Paget's disease of the nipple and leukoplakia in cancer of the tongue; and also an analogy with cancers of the scrotum and penis, occurring in certain working classes.

3. A similar admixture of bacteria and organisms resembling actinomycetes, with the formation of multiple abscesses was observed in an animal inoculated with the contents of carious teeth. No typical club-bearing actinomyces granules were found.

4. Two previously reported and three of four additional cases.

COMPLEMENT FIXATION WITH AN ANTIGENIC CRYSTAL OBTAINED FROM LUETIC LIVER*

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Since the observation by Wassermann, Neisser, and Bruck[1] of the value of the complement fixation test in lues, the exact nature of the antigenic substance or substances contained in extracts from luetic and normal tissues has received a great deal of attention, and the results appear to show that more than one substance, capable of acting as an antigen, is contained in these extracts. It is the purpose of this contribution to describe briefly a crystal obtained from an alcoholic extract of luetic liver which acts as a very efficient antigen when dissolved in alcohol, and which has not, to my knowledge, been heretofore obtained from such extracts. I regret to state that at the present writing the exact chemical nature of this crystal has not been ascertained, the most that can be said concerning it being that it may belong to the group of crystals which may be obtained from the bile salts.

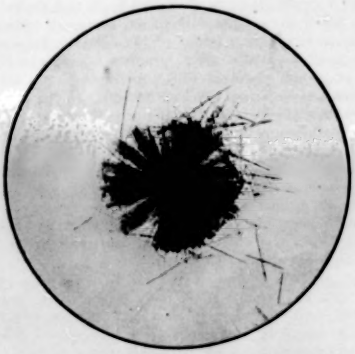

Fig. 1.—Antigenic crystals × 372.

Fig. 2.—Antigenic crystals × 750.

It is probable that in an alcoholic extract of luetic liver, containing, as it does, a mixture of numerous organic and inorganic substances, there occur chemical bodies which may react one on another, giving rise to modifications resulting in the production of antigenic substances not demonstrable in the fluid until these reactions have occurred. It would appear that the crystal under discussion originates in this manner, as it does not occur in the fresh extract, but only after the extract has been kept for several weeks.

It has been proved that several substances may be separated from animal tissue which, when used alone, may act as antigens. Landsteiner, Müller, and Potzl[2], as well as Porges and Meier[3], found that lecithin acts as an antigen and Noguchi[4] has confirmed their results, but lecithin alone is unsatisfactory in practice, on account of its variability in this respect. Noguchi states that while lipoids are undoubtedly active agents in complement fixation it has not been ascertained just which lipoids are concerned, but his acetone-insoluble lipoid antigen is an excellent illustration of the fact that these substances, at least, are capable of acting as most efficient antigens. Cholesterin has been claimed by Fleischmann[5] to be antigenic, but Noguchi only obtained negative results with this substance. However, the recent work of Browning, Cruickshank, and McKenzie[6] has shown that when cholesterin is added to an alcoholic solution of lecithin to the point of saturation, the complement-binding power of the solution is greatly augmented, and an antigen is obtained which they say "is a very efficient substitute for the crude organ extract in the Wassermann test, and is probably superior to the crude extract."

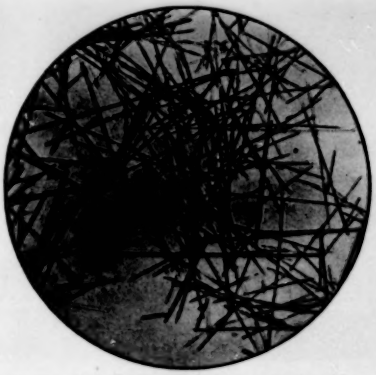

Fig. 3.—Antigenic crystals × 1500.

* From the Laboratory of the Surgeon-General's Office, Washington, D. C.

1. Wassermann, Neisser and Bruck: Deutsch. med. Wchnschr., 1906, xxxii, 745.
2. Landsteiner, Müller and Potzl: Wien klin. Wchnschr., 1907, xx, 1421; ibid, 1565.
3. Porges and Meier: Berl. klin. Wchnschr., 1908, xlv, 731.
4. Noguchi: Jour. Exper. Med., 1909, xi, 84.
5. Fleischmann: Berl. klin. Wchnschr., 1908, p. 490.
6. Browning, Cruickshank and McKenzie: Jour. Path. and Bact., 1910, xiv, 484.

The artificial antigen of Sachs and Rondoni[7], composed of an alcoholic solution of lecithin, oleate of soda, and oleic acid, has received both favorable and unfavorable comment, and is not generally accepted as being as reliable as the crude extract. Of the soaps, oleate of soda has been used as an antigen by Sachs and Altmann[8], while the salts of the bile acids, sodium taurocholate and sodium glycocholate were proven to be antigenic by Levaditi and Yamanouchi[9], their work being confirmed by Noguchi[4], who also found that sodium cholate acts as an antigen.

I have found that sodium taurocholate is absolutely useless in practice, for, while possessing antigenic properties, it is very weak in this respect, and different samples vary exceedingly. My observations confirm those of Noguchi, who found that the bile salts were greatly inferior to the lipoids as antigens.

The antigenic crystal described in this paper is as efficient, when absolute alcohol is saturated with it, as is the crude extract from which it was obtained, but while this is so, I do not consider that this crystal is the only antigenic substance present in the crude extract, or even that it is necessarily the most important in this respect, for to admit this would be to contradict the great antigenic value of other substances obtained from tissue extracts and which bear no resemblance to it in morphology or chemistry.

The important fact determined by observations on the antigenic value of this crystal is that it is practically as efficient, in antigenic strength, as the whole extract, and that a saturated alcoholic solution of these crystals may be substituted for the crude extract with identical results, so far as clinical diagnosis is concerned.

METHOD OF OBTAINING THE CRYSTALS

The crystals under discussion were obtained from an extract of luetic liver made in December, 1909. The liver was macerated in 10 volumes of absolute alcohol for 10 days, the mixture being kept in the incubator at 37° C. and shaken several times a day during that period. The resulting mixture was then filtered and the filtrate at once evaporated to one-third its volume by means of an electric fan, at room temperature. When titrated it was found that 1 drop from a capillary pipette was sufficient to cause total inhibition of 1 c.c. of a 1 per cent. suspension of human corpuscles in the presence of luetic serum (Noguchi's modification of the Wassermann test being used) so that this extract may be said to have been strong in antigenic substances.

A portion of the extract was allowed to remain undisturbed in the ice-box until early in April (about four months) when it was observed that a snow-white precipitate had formed. On microscopic examination this was found to consist of long, needle-like crystals, small coarsely granular masses, and prismatic crystals. On filtering and adding the precipitate to a sufficient amount of absolute alcohol, the granular matter and the prismatic crystals dissolved, leaving the needle-like crystals apparently intact. In order to obtain these crystals in as pure a condition as possible, they were washed from eight to ten times in absolute alcohol and preserved in a small amount of the latter.

7. Sachs and Rondoni: Ztschr. f. Immunitatsforsch, 1909, i, 132.
8. Sachs and Altmann: Berl. klin. Wchnschr., 1908, xlv, 494; ibid, 1908, xlv, 699.
9. Levaditi and Yamanouchi: Compt. rend. Soc. de Biol., 1907, lxii, 740

CHARACTERISTICS OF THE CRYSTALS

The crystals are long, needle-shaped bodies, having a fractured extremity, and are well illustrated in the photomicrographs (Figures 1, 2 and 3). They are colorless when viewed singly, but *en masse* form a snow-white collection at the bottom of the container. When shaken in alcohol the resulting mixture has a peculiar silky appearance due to the multitude of very delicate crystals suspended in the fluid. The exact chemical nature of the crystals has not been definitely ascertained. They give a positive Pettenkofer's reaction, thus indicating that they belong to the bile salts. I have compared them with taurocholic and glycocholic acids, and sodium taurocholate and glycocholate and find that they differ markedly in appearance and in solubility. While, from the method of preparation, it cannot be proved that the crystals are chemically pure, the great differences that show in solubility and the fact that they are so strongly inhibitory would appear to prove that they are not identical with any of the substances so far investigated. In appearance, they resemble glycocholic acid most closely and because of this I have compared them very carefully with this substance, with the following results:

The sample of glycocholic acid was prepared by Kaulbaum, and was found to be very soluble in absolute alcohol and acetic acid, soluble with difficulty in cold water (300 parts); soluble in acetone and slightly soluble in ether. The antigenic crystal is very slightly soluble in absolute alcohol and very soluble in acetic acid, exceedingly soluble in cold water; insoluble in acetone and ether. The saturated solution of glycocholic acid in absolute alcohol is yellow in color, while the solution of the antigenic crystal in this fluid is colorless. The melting point of glycocholic acid lies between 138 and 140 degrees C.; that of the antigenic crystal is 235 degrees C.

It will be observed that the antigenic crystal differs greatly from glycocholic acid in solubility in different reagents and the melting point, and in addition I have determined that glycocholic acid cannot act as an antigen. If placed under the same conditions as the antigenic crystal, *i. e.*, in saturated alcoholic solution, one drop, when added to 1 c.c. of a 1 per cent. suspension of human corpuscles, will cause total hemolysis in a few moments without the addition of complement, while larger doses cause a dirty-gray precipitate. If diluted, in any strength, the acid is unable to cause inhibition, dilutions from 1 to 50 up to 1 to 1,000,000 having been tested. It is therefore my opinion that these crystals are not glycocholic acid or any of the bile salts which have been mentioned.

The very small amount of these crystals which is soluble in absolute alcohol is remarkable, a very minute quantity of the crystals being sufficient to make a large amount of efficient antigen. That the crystals are very slowly soluble is proved by the following observations: A small quantity of the crystals was washed eight times in absolute alcohol, the alcohol being saved after each washing. The washing was done with a centrifuge and it was found, by titration with a known positive luetic serum, that each washing was weakly antigenic. After the last washing the crystals were allowed to remain in a test tube, with a quantity of absolute alcohol, for 24 hours, in the ice-box; the alcohol was then titrated and found to be much greater in antigenic power than the alcohol used in washing. Another titration at the end of 72 hours proved that after this period the alcohol possessed twice the antigenic power that it did at the end

of 24 hours, and that it was as efficient as the crude extract in this respect. No increase in antigenic value was noted after 72 hours.

Owing to the slight solubility of these crystals and the fact that even the small quantity that is dissolved is sufficient to cause absolute inhibition of hemolysis in the presence of luetic serum, it is possible with a small quantity of the crystals to prepare a large amount of antigenic solution. From the very small amount of crystals originally obtained from the crude extract, an amount which was not weighed, but was certainly not over a few centigrams, I have already prepared over a liter of antigen as strong in antigenic properties as the whole extract, and have enough remaining to prepare almost as much more. The original amount of crude extract was 250 c.c.

I mention this in order to show how little of the material is soluble in absolute alcohol, yet is efficient as an antigen. As soon as the alcohol is saturated it possesses practically the same antigenic strength as the whole extract, and in the same amount does not possess either hemolytic or inhibitory properties when used with normal serum. If added in too large an amount it will inhibit hemolysis, as will almost every antigenic substance if used in too large a dose, and if the crystals be added directly to a blood suspension they produce hemolysis. They are very soluble in salt solution and if dissolved in this medium in large amount they produce hemolysis, so that they should not be used in this manner. The amount soluble in absolute alcohol is never sufficient to produce hemolysis and, for practical use, the crystals have to be used in alcoholic solution.

COMPLEMENT FIXATION

The method used in testing the antigenic properties of the crystals has been the same as is used in making the Wassermann test in this laboratory, *i. e.*, Noguchi's modification; and it has been my practice since May, 1910, to run parallel tests of each serum, so far as possible, using the whole alcoholic extract as antigen in one set, and the saturated alcoholic solution of the crystal in the other. It will be understood, then, that the methods of titration, and of performing the tests, are those recommended by Noguchi, and that identical conditions were present in both sets of tests with the exception of the antigenic solution.

The first titration of the original whole extract and of the saturated alcoholic solution of the antigenic crystal resulted in showing that both were practically the same in antigenic strength, the crystal antigen being slightly the weaker of the two, requiring 0.025 c.c. instead of 0.02 c.c. to produce inhibition under similar conditions. The titration was made in May and since then both the crude extract and the crystal antigen have grown gradually weaker, at present 0.06 c.c. of the extract being required to produce inhibition and 0.08 c.c. of the alcoholic solution of the crystal. From this it is evident that neither the crude extract or the crystal antigen are permanent, so that it is necessary to titrate both at intervals. Since May, I have made comparative tests of 160 different sera with both antigens and in every case the results have been practically the same. The sera examined were from patients suffering from primary, secondary, tertiary, and latent lues and from other diseases, and in no instance was a positive reaction given by the whole extract and a negative by the crystal, or *vice versa*. From a clinical standpoint the results may be said to have been identical, but it was noticed in a few cases that the whole extract gave slightly more marked inhibition than the crystal antigen, while in a few others the crystal antigen gave a stronger reaction. These slight differences caused no confusion in reading the tests, but are interesting because they indicate that substances are present in the whole extract which caused differences in the reaction obtained. The variations were not confined to any one stage of lues or to any particular class of cases, as is illustrated in the following table giving the results in 15 cases, in 10 of which these slight differences in the strength of the reaction were detected. The signs ++,+ and + — are used to indicate the differences in the reactions, but they should not be interpreted to indicate such great differences as are usually meant by them when used to illustrate the varying degrees of inhibition in the Wassermann test, as in all of the positive cases inhibition was practically complete and the tests were undoubtedly positive with both antigens:

Case.	Diagnosis.	Whole Extract.	Crystal Antigen.
1.	Primary lues	++	+
2.	Primary lues	++	++
3.	Primary lues	+	+−
4.	Secondary lues	++	+
5.	Secondary lues	++	++
6.	Secondary lues	++	+−
7.	Secondary lues	+	++
8.	Tertiary lues	++	+
9.	Tertiary lues	++	++
10.	Tertiary lues	++	++
11.	Tertiary lues	+	+
12.	Latent lues	+	++
13.	Latent lues	++	+
14.	Latent lues	++	+
15.	Latent lues	+	+

It will be observed that in some cases the crystal antigen gave a stronger reaction than the whole extract, while in other instances the opposite is true. In the majority of the sera tested, however, the results were identical, and in none was there any disagreement as to a positive or negative result. The explanation of the slight differences noted is difficult, but they apparently depend on differences in the sera tested, some body or bodies being present having slight inhibitory power over the antigenic action of one or the other antigen. I believe that the whole extract gave slightly better results in the majority of cases, but the crystal antigen gave results which were as dependable as those given by the whole extract and as clinically useful.

The practically identical results obtained with the whole extract and the antigenic crystal, the practically identical titration of both, and the gradual loss in antigenic strength in both as determined by titration would apparently prove that the crystal represents the only active antigenic substance present in the crude extract, but such an opinion is hardly justifiable, for other substances are present in alcoholic extracts of luetic liver which have antigenic properties and which do not appear to be identical with these crystals. I have been unable to obtain the crystals in one lot of acetone-insoluble lipoid antigen, prepared according to Noguchi, and no work has yet been done to determine whether they occur in alcoholic extracts of normal tissues which have been found to have antigenic properties. The crystals are not obtained in every alcoholic extract of luetic liver, for in one such extract, made in the manner described, and now seven months old, the crystals have not appeared. It is interesting to note that this particular extract is very weak in antigenic property, and that it is rapidly losing strength. Of course it is possible that in the original extract from which the crystals were obtained, some con-

dition not usually found was present, or that some particular step in the preparation favored the formation of the crystals, but I believe that further research will demonstrate that they are present in the majority of alcoholic extracts of luetic liver prepared in the manner mentioned. If these crystals can be obtained in most alcoholic extracts of luetic liver, or other tissues, as easily as they were in the extract here described, it will greatly simplify the preparation of antigenic solutions, as so small a quantity of the crystal is needed to make a large amount of efficient solution. It may be found possible, also, to keep the crystals in a dry state, and thus enable us to make up small amounts of antigenic solution as needed.

Until the exact nature of these crystals is determined it is idle to speculate on the relation which these observations bear to the present theories regarding the mechanism of complement fixation in lues, but they would appear to indicate that the purely chemical nature of the process should be more fully investigated, and that the preparation of a reliable artificial antigen may be hoped for in the future.

The most important result of these observations is the isolation of an apparently pure crystalline substance from an alcoholic extract of luetic liver which possesses practically the same antigenic strength as the original whole extract and which can be used with practically identical results in the complement fixation test for lues.

I desire to express my thanks to Dr. Noguchi for helpful suggestions, and to Prof. Frank P. Underhill, of Yale University, for valuable aid in the investigation of the nature of the crystal. Owing to the small amount of material I was able to furnish for this purpose a definite conclusion could not be reached regarding this question.

THE PATHOLOGY AND PROGNOSIS OF INTERNAL EAR COMPLICATIONS RESULTING FROM INFLAMMATORY MIDDLE-EAR DISEASES *

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In 1907 a paper appeared by Dr. C. J. Blake of Boston under the above heading, as a part of a symposium on suppuration of the labyrinth. Our knowledge of the pathology of suppuration of the labyrinth has been increased since then by a number of valuable contributions, but, as in 1907, the volume of the literature on the clinical part of the subject is out of all proportion more extensive than on the pathologic. This is explained by the great technical and scientific difficulties of pathologic investigation of the labyrinth. The large amount of clinical literature, based on this comparatively small foundation of pathology, creates the impression that the whole structure of our teachings of suppuration of the labyrinth is somewhat top-heavy, and the inevitable consequence will be that our views on some of our clinical teachings, as for example concerning the indications for operation, will probably, sooner or later, have to be modified.

In sketching the pathology and the prognosis of internal ear complications, resulting from inflammatory middle-ear diseases, I shall try to give a general survey of the status of the subject, only indicating some of the open questions rather than attempting to answer many of the questions, which, to a great extent, can be done correctly only by future careful and patient observation of the living and of the post-mortem material.

Bacteriology will be of little use, as even the differentiation of tuberculous labyrinthitis (which differs in many respects from all other forms of labyrinthitis) is made from pathologic and not from bacteriologic criteria.

Statistics also are admissible only conditionally, since Goerke, for example, puts acute suppurations of the labyrinth and acute exacerbations of chronic suppurations in the same category, drawing therefrom the conclusion that suppurations of the labyrinth in acute suppurations of the middle ear are nearly as frequent as those in chronic suppurations. There is another question which must be decided before we can make use of statistics. If a labyrinth sequestrum is found twenty years after a patient had scarlet fever, during which time the ear had suppurated, this certainly would seem to be a chronic suppuration of the middle ear and labyrinth. But the real course of the disease was probably as follows: The patient was very sick after the scarlet fever, had little power of resistance, and acute scarlet otitis set in which invaded the labyrinth. Thrombosis of one of the large arteries destroyed a part of the labyrinth, so that the so-called chronic suppuration was simply caused by the process of demarcation of the sequestrum, and finally by the sequestrum itself, which induced suppuration, acting as a foreign body. Clinically as well as pathologically such a case is an acute panotitis and cannot be put on a parallel with cases of cholesteatoma, in which one part of the labyrinth is destroyed while the other still shows function. Our position in this matter is not strengthened by the assertion made by some careful and experienced observers, namely, that they never saw a sequester develop in a case that was treated properly from the beginning. It is evident that at present it is too early to give statistics, and only as an apology do I repeat the well-known statement that, according to Hinsberg, there is one suppuration of the labyrinth to every one hundred acute and chronic suppurations of the middle ear.

The best division of my subject, having also clinical value, is the following:

I. Serous labyrinthitis.
II. Labyrinthitis in connection with acute otitis media, including scarlet fever, diphtheria and otitis, leading to formation of sequestrum.
III. Chronic labyrinthitis in consequence of cholesteatoma.
  A. Circumscribed labyrinthitis.
  B. General labyrinthitis, caries, necrosis.
IV. Tuberculous labyrinthitis.

I shall try to give a short description of each of these different forms.

I. SEROUS LABYRINTHITIS

Serous labyrinthitis was first described by Professor Siebenmann and his assistant Dr. Nager in connection with cholesteatoma and tuberculosis of the middle ear. Some of their original specimens from a patient who suffered from tuberculosis of the middle ear show no perforation into the labyrinth. Nevertheless, there are crescent-shaped, slightly opaque parts on the same side of each whorl of the cochlea. Their only explanation is this: In the preparation of the normal specimen the

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labyrinthine fluid is lost, and the cavity of the cochlea is empty when seen under the microscope, but this transudation, being of an inflammatory nature, has coagulated. It was compared to the hypopyon in the eye, which is also a gathering of sterile seropus in a cavity close to an inflammatory focus, not in direct connection with the focus, but separated from it by some more or less healthy tissue, such as the cornea in one, and bone and membranous labyrinth in the other locality. Reisner's membrane, the sensory epithelia, Corti's organ, etc., are not very much changed, but they certainly have suffered somewhat.

This form of inflammation may heal by simple absorption of the fluid and consequently the hearing, which is lost during the inflammation, may be more or less completely restored; or it may become organized, and by formation of scars, in the course of time crush out the life of some of the important cell groups, which otherwise might, to some extent, have recovered. Siebenmann attributes certain forms of deaf-mutism existing at birth to intra-uterine labyrinthitis of this form.

II. LABYRINTHITIS IN CONNECTION WITH ACUTE OTITIS MEDIA

The labyrinthitis in connection with acute otitis media is usually the avenue by which the disease advances to a fatal meningitis in those fortunately not frequent cases in which death occurs a few days after the beginning of an acute otitis media. The port of entrance is usually the round or the oval window, or else, though rarely, some defect or dehiscence in the bony wall of the labyrinth. The infection at once invades the whole labyrinth, the cochlea as well as the vestibular apparatus. From the labyrinth the infection has two avenues to the meninges, one along the auditory nerve, the other through the aqueductus vestibuli and the endolymphatic duct. The possibility can certainly not be disputed that, in making a paracentesis, the stapes may be injured and the entrance of infection facilitated, or that instillations of peroxid may force infected material through the highly inflamed and, therefore, brittle membranes of the windows. A short sketch of the history of a case which first drew my attention to this possibility is the following:

A man, 35 years old, was seen at a hospital in an unconscious condition on a Monday evening in November, 1902. There was seropurulent discharge from the right ear, hard pulse and stiffness of the neck. His friend told me that he had developed earache the Friday evening previous. Saturday a paracentesis had been made and in the evening the patient went to bed on account of dizziness. Sunday severe headache and vomiting set in. Monday he became unconscious, and was brought to the hospital, where he died during the night. At the post-mortem examination the base of the brain showed pus along the blood-vessels. The pus was thickest in the locality of the right cerebellum, which corresponded to the place on the posterior surface of the pyramid, where in the reddish dura, the saccus endolymphaticus was visible as a flabby yellow bag filled with pus. All spaces of the labyrinth contained pus; the crura of the stapes were severed from the footplate, surrounded with pus. The oval window was open.

The round window does not become a port of entrance of infection as frequently as does the oval window. Several authors attribute this to the more protected position of the round window. It is difficult to understand from what it is protected, unless it is from direct injury, since hydraulic pressure of the pus will act against the round window in the same way as it does against the oval window. The perforation of both windows takes place in some cases. Some authors assert that the swollen mucous membrane or granulations in the niches of the windows form a protection of the membranes of the windows; others assert the opposite, and show that a perforation occurred where the granulations caused a retention of the secretion.

Other ports of entrance, dehiscences and newly formed perforations, are much more rarely the cause of acute suppurations of the middle-ear spreading to the labyrinth. The location of the perforation is alone responsible for the course the disease takes. Cases are reported by Yoshii and Goerke of perforation from the Eustachian tube into the top of the cochlea. In these rare instances the suppuration remained confined to one coil.

The forms of otitis media after scarlet fever, diphtheria and measles, leading to labyrinthitis and finally to the formation of sequestrum, seem really to belong to this category, because the initial lesion is an acute otitis media, which, on account of the weak general condition of the patient, is followed by a slow and more or less general labyrinthitis. Lange and Goerke explain that "the cause for necrosis and the formation of a sequester of the whole labyrinth must be sought in the interior of the labyrinth." The demarcation and sometimes spontaneous elimination of a sequester of the labyrinth is usually a very slow process lasting for years, and during all this time it is associated with suppuration from the ear. But it is by no means a unique process, since the formation of large or smaller sequesters in the mastoid process is not at all rare. The peculiarity of the process is the fact that encasement of new bone is not formed in the labyrinth and in the mastoid, as around sequesters of, *e. g.*, the tibia.

III. CHOLESTEATOMA

Whenever during a suppuration there is a destruction of a large part of the lining of the middle ear, the defect can be remedied only by a scar and covered by epidermis; or when the tympanic membrane has become adherent to the inner-wall of the middle ear or aditus ad antrum, from long contact caused by being drawn inward, the result in both cases is a displacement of the normal lining of the middle ear by a cholesteatoma membrane. Underneath this membrane the bone becomes gradually absorbed. If this process takes place on the medial wall of the middle ear and antrum, it will lead to absorption of the capsule of the labyrinth. The result is a fistula of the labyrinth, which, however, is still covered by the cholesteatoma membrane. This membrane is often reduced to a simple layer of epidermis. It is important to remember that this process is often combined with suppuration in other parts of the middle ear, but it may also occur without even a trace of inflammation or suppuration or granulation being present. In the antrum and aditus it leads to a fistula of the horizontal or superior semicircular canal. The bone around it is ivory-like, white, and shows either a fine hole, a groove, or two separate holes, according to whether the semicircular canal is just opened or its wall has been partially or entirely worn away by the absorbing process. A protecting wall of granulations often, but by no means always, protects the remainder of the labyrinth. The result may be as follows:

1. Circumscribed labyrinthitis, which is usually confined to one or two semicircular canals. Other peripheral parts of the labyrinth are rarely affected. Herzog

stated that the first step in a circumscribed labyrinthitis is always a general serous labyrinthitis, and in this way he explains a number of symptoms, while others contradict him.

2. General labyrinthitis. A labyrinthitis is likely to remain local and circumscribed only if it concerns peripheral parts. Whenever the perforation takes place in the vestibulum the result is general labyrinthitis. This leads to destruction of all the important parts of the organ and therefore leads to total deafness. The process may be acute or chronic. An acute general labyrinthitis in connection with cholesteatoma is often connected with some therapeutic means, syringing or operation, whereby the cholesteatoma masses are forced through a fistula, or one of the windows is injured. The result is usually complete destruction of all important parts of the labyrinth and is often a stepping-stone to meningitis. In exceptional cases small circumscribed parts of the cochlea may recover.

Labyrinthitis in connection with cholesteatoma of the middle ear is by far the most frequent form of labyrinthitis associated with suppuration of the middle ear. Aside from the simple absorption of the capsule, the process may invade the labyrinth by caries, that is, destruction by granulations or by necrosis. In long-standing cases both processes take place side by side, and it is usually difficult or impossible, even under the microscope, to decide which of the two is the more prominent.

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IV. TUBERCULOUS LABYRINTHITIS

Tuberculous labyrinthitis was investigated by Bezold, Scheibe, Siebenmann, and Nager. They found that its chief characteristic is the absence of all attempts at regeneration, as the disease occurs in patients who are in poor general condition, owing to the advanced stages of the disease of the lungs. A great resemblance was found between these processes and those in scarlet fever, in which, as was seen before, the disease attacks individuals whose power of resistance is greatly reduced. The most harmless form of disease of the labyrinth is the infiltration of the annular ligament of the oval window, or of the membrane of the round window combined with a few granulations on the inner surface of the ligament, and a serous labyrinthitis. It occurs in scarlet fever as well as in tuberculous otitis. The sensory epithelium is comparatively slightly affected and recovery with little loss of function is therefore possible, if the general condition improves. The more serious forms are clinically, as well as pathologically, even more interesting. In looking over the reports of Dr. Heinrich Herzog, we find deafness usually very pronounced, but the other labyrinth symptoms, dizziness, vomiting, nystagmus, etc., are rarely mentioned by the patients. The pathologic changes, on the contrary, are very extensive. Tuberculous processes usually enter through the windows into the labyrinth. The labyrinth fluid is changed, and contains many cast-off cells, the membranous labyrinth is destroyed, the sensory epithelium is swollen and cast off or changed to unrecognizable heaps of cells, and the nerves are atrophied and extensively infiltrated. But the process does not spread beyond the boundaries of the labyrinth, and death from meningitis rarely occurs in tuberculous labyrinthitis.

PROGNOSIS OF INTERNAL EAR COMPLICATIONS

The prognosis of internal ear complications, resulting from inflammatory middle-ear diseases, consists of the prognosis concerning the hearing, and the prognosis concerning the life of the patient. In serous labyrinthitis the life of the patient will rarely be jeopardized, nor will the hearing. Much more dangerous, in fact the most dangerous of all forms of labyrinthitis, is the labyrinthitis in connection with acute otitis media. The so-called acute panotitis usually terminates fatally, as the meninges are invaded almost simultaneously. An operation in these rare cases can scarcely ever be premature, provided the diagnosis of labyrinthitis is certain, since the process, if left to itself, is liable to end fatally after a very few days. Scarlet fever and diphtheria otitis, complicated with labyrinthitis, progress more slowly, owing to the poor general health of the patient, and, therefore, the life of the patient is often spared, though the hearing of the ear involved is destroyed.

The prognosis of labyrinthitis in consequence of cholesteatoma of the middle ear is best given in Dr. Karl Grünberg's words: "Pathology teaches us that the suppurative inflammation of the labyrinth has a pronounced tendency to heal, provided life is not extinguished by other complications. After the acute stage has passed the exudations become organized and form a scar." The final result as to hearing depends on the extension of the destruction and the extremely varying power of restitution. Goerke, in connection with a case of perforation of a chlosteatoma through the annular ligament, is even more sanguine. "The number of cases of labyrinthitis which heal in this way cannot be estimated, hardly can they be suspected, if we consider how many ears of deaf-mutes show similar changes. It must be repeated over and over again that the most serious forms of labyrinthitis show attempts at recovery which—and this is important—really give the protection which we expect of them."

In view of these quotations taken from some of the most modern writers, the large death-rate in connection with operations on the labyrinth is rather surprising. It is now known that many lives have been sacrificed on account of the lack of knowledge of pathology, lack of experience on the cadaver, and lack of clinical experience. Recognizing this fact, it is evident that operations on the labyrinth ought to be performed only by qualified operators. This restriction must be extended beyond the labyrinth operations proper, as it is beyond question that many a death, after a simple mastoid operation, finds its explanation in the curetting of a few granulations on the medial wall of the antrum, aditus or middle ear. These granulations often cover a fistula in the labyrinth and their removal opens the avenue for infection of the whole labyrinth and the meninges. Trained assistance also is important, since an incompetent handling of a retractor may, by luxating the stapes, lead to the same consequences.

Pathology has shown that Nature is able to cope with a suppuration of the labyrinth, provided she has sufficient time to throw out her safeguards.

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Treatment of Nervous Diseases.—The first essential for the successful treatment of any disease is a correct diagnosis; the second is a full recognition of the source from which the disease has flowed; and the third is a clear conception of what we desire to accomplish. Given this information, curable nervous diseases may be shaped toward recovery by such physical measures as rest, occupation, and exercise; by water, electricity and massage; by exhortation, persuasion and explanation, and by medicines.—J. Collins, in *Interstate Medical Journal.*

DISCUSSION OF THE SYMPTOMS AND DIAGNOSIS OF INFECTION OF THE LABYRINTH RESULTING FROM SUPPURATIVE OTITIS MEDIA *

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Infections of the labyrinth from suppurative otitis media may be classified as (1) circumscribed, (2) diffuse, (a) manifest (circumscribed or diffuse), (b) latent (diffuse), (3) perilabyrinthitis.

Circumscribed labyrinthitis is qualified thus: with erosion, fistula or stapes subluxation, or without either.

Diffuse labyrinthitis is qualified as suppurative, serous or hyperemic.

By manifest labyrinthitis is meant an inflammatory disease of the labyrinth, showing characteristic spontaneous symptoms.

Latent labyrinthitis signifies a like disease, showing no characteristic manifest spontaneous symptoms.

Perilabyrinthitis is an inflammatory disease of the cellular bone surrounding the labyrinth capsule. It can cause suppurative, serous and hyperemic labyrinthitis, or necrosis with sequestration of a part or the whole of the cochlea.

This cellular bone may be either diploetic or pneumatic. When pneumatic the cells have a mucous lining and communicate with the antrum and mastoid cells. A pneumatic structure must be frequent, as Wales[1] speaks of the membranous lining as being constant.

In those cases of chronic suppurative otitis media which progress to infection of the labyrinth, the otoscopic pictures which I have seen are as follows: The drum is perforated, usually below Shrapnell's membrane. If the perforation is central, granulations may be observed springing from the promontory or from around the oval or round windows, or from all of these points at the same time. Some part of these granulations may pass through the drum perforation, even filling most of the external canal. Their attachment can then be determined only by the probe. If the whole drum has been destroyed or the perforation is marginal, cholesteatoma will be seen, especially in the neighborhood of the windows and antrum, provided the exudate is not great enough to wash away the epidermal cells, of which the cholesteatoma is largely composed. The third picture shows the inferior portion of the drum attached to the lateral labyrinth wall and the perforation, which was central, thus made marginal. Cholesteatoma either will be seen or may be washed out. In these cases a fistula through the posterior-superior part of the external auditory canal will sometimes be seen, which communicates with the antrum.

The symptom-complex is changed according to routes of infection, of which there are three:

1. Through some part of the lateral labyrinth wall (usually circumscribed labyrinthitis).
2. Through the blood-vessels (usually diffuse suppurative labyrinthitis).
3. Through the perilabyrinthine bone cells (usually diffuse serous labyrinthitis).

CIRCUMSCRIBED LABYRINTHITIS

Circumscribed labyrinthitis is characterized by the following symptoms: defective hearing, even to total deafness, or no defect of hearing referable to the cochlea; tinnitus, with or without cochlear impairment of hearing; cochlear impairment of hearing with or without tinnitus; vertigo coming in attacks, of which Barany says there are two types.

The first comes without outward cause, while the patient is quiet or even during sleep. The attacks are severe and of long duration, lasting from half an hour to several hours, and are more frequent than those of the second type. They are accompanied by nausea and vomiting, almost always, and by disturbances of equilibrium and spontaneous vestibular nystagmus. The nystagmus is rotary or compound, horizontal and rotary; directed as a rule to the diseased side only, but sometimes to the sound side also, but strongest to the diseased side.

Such attacks are probably due to hyperemia, as I have noticed marked impairment of hearing during attacks of this character. It is probable that diffuse hyperemic labyrinthitis occurs only in the course of circumscribed and perilabyrinthitis and acute suppurative otitis media.

The second type comes from without, especially from rapid movement of the head, arising from bed, looking upward, bending forward, etc., and going from a hot to a cold room, and *vice versa*. They are not severe or of long duration, lasting from a few seconds to some minutes only. Nausea and vomiting are wanting. Spontaneous nystagmus and disturbances of equilibrium are always present.

In both kinds of vertigo the fistula symptom and cochlear symptoms may be found. Between attacks these patients frequently feel quite well and have no manifest symptoms. If examined between attacks the reaction to both the turning and the caloric tests are quite normal, as a rule. Exceptionally when the caloric test is normal the rotary nystagmus from turning lasts longer than the horizontal. This never occurs in the perfectly healthy; it is, therefore, pathologic. When the reactions between attacks are normal the spontaneous nystagmus during attacks is strong and directed to the diseased side only. When the reaction is subnormal the spontaneous nystagmus may be strong and directed to both sides when the eyes are in the corresponding lateral position, though strongest to the diseased side. It is compound, as a rule, rotary and horizontal. Between attacks throwing the head backward causes vertigo and rotary nystagmus to the diseased side for fifteen seconds. This procedure cannot be repeated for ten minutes. Inclining the head to the shoulder of the diseased side causes strong rotary nystagmus to the diseased side. The same procedure to the well side seldom causes nystagmus. When it does occur it is weak, rotary and directed to the sound side. The fistula symptom can often be demonstrated. Failure to find it does not preclude the presence of fistula, because cholesteatoma over or granulations around the fistula sometimes prevent compression and aspiration of the membranous canal. To be certain that eye movements are a reflex response to artificial opening in the labyrinth wall the examination must be made by placing in the auditory meatus a Siegel otoscope or a perforated olive tip, with rubber tubing and bulb attached and then making compression and aspiration without removal of the tip. If a slow eye movement occurs in one direction by compression, and in the opposite direction by aspiration, fistula may be confidently diagnosed. A quick eye movement in the opposite direction to the slow, constituting nystagmus, is not essential. If the Eustachian tube is

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1. Baurnhlli and Wales: Modern Otology.

open it must be closed, if possible, with a plug of cotton, otherwise the cavity will not be air-tight and the test will fail.

When the reaction to the turning and caloric tests are subnormal the eye movement is very small, requiring the closest inspection, at times, to detect it. The quick component, that is to say, nystagmus, does not occur in response to the compression and aspiration test. Ten turnings right and left give the following pathologic results: The after-nystagmus to the diseased side lasts half as long as that to the good side. This symptom alone cannot be considered pathologic unless the difference is at least as two to one. This is the typical subnormal reaction to turning.

When patients are in bed during severe attacks of vertigo they lie on the diseased side because in looking at objects in the room they look away from the quick component of the nystagmus, thus lessening its activity.

MANIFEST DIFFUSE LABYRINTHITIS

Manifest diffuse labyrinthitis is ushered in by the circumscribed becoming diffuse through intratympanic operation or acute exacerbation of the otitis media; (first route) by direct infection through the blood current; (second route) or by the perilabyrinthine route. It is of first importance to distinguish between the suppurative on the one hand and serous and hyperemic on the other. In the suppurative the cochlear symptoms are absolutely negative, and hearing is quickly and completely lost. In the serous and hyperemic some hearing remains, the small a_1 Bézold fork will, at least, be heard. Spontaneous recovery of hearing takes place in serous and hyperemic labyrinthitis. From our present knowledge all cases in which hearing is recovered belong to these types. The vestibular symptoms are exceedingly stormy. Vertigo is so marked that frequently the patients are unable to stand. Objects within the visual field seem to move to the sound side; when the eyes are closed the body of the sufferer seems to him to rotate to the sound side. Nausea and vomiting nearly always accompany the vertigo. Horizontal and rotary nystagmus (compound) is marked. If the disease is left-sided, the nystagmus is to the right; if right-sided, the nystagmus is to the left, especially when the patient is looking in these directions. When he is looking straight ahead or to the opposite side to the quick component the nystagmus is invariably present, but weaker. Looking to the sound side and movement of the head increases the nystagmus. The position in bed is directly the reverse of that in severe attacks during circumscribed labyrinthitis. They lie in the sound side. The caloric test of the diseased ear is negative. Cold irrigation of the sound side stops the spontaneous nystagmus to this side and causes rotary nystagmus to the diseased side for a few seconds. Hot irrigation of the good ear increases the spontaneous nystagmus and the severity of the accompanying symptoms. The spontaneous nystagmus can also be increased by turning, head erect, to the diseased side. It is lessened or stopped for a few seconds by turning toward the good side. Turning with the head 90 degrees forward produces corresponding results. In either case the increase lasts just twice as long as the reduction.

Vestibular ataxia or reactionary body movements are the same as in experimental physiologic nystagmus, namely, always in the opposite direction to the quick component of the nystagmus. For instance, a patient with spontaneous, rotary nystagmus, that is, nystagmus in the frontal plane, to the left; standing facing forward, head erect, feet together and eyes closed will fall to the right. With head rotated to left shoulder the nystagmus is directed backward and the falling is forward. With head rotated to the right shoulder the nystagmus is directed forward and falling is backward. With the head inclined 90 degrees forward the nystagmus is horizontal with relation to the earth. Falling cannot take place in this plane, therefore the reactionary movement is rotation around the vertical axis to the right, very unsteady and staggering. These reactions occur in 50 per cent. of cases. Practically all neurasthenics react, but not by the above rule. They usually continue to fall in the same direction or sink to the floor, irrespective of change of direction of the nystagmus. Their reaction does not characterize the nystagmus but does characterize the neurasthenic. The nystagmus known as horizontal causes no reactionary body movement.

LATENT LABYRINTHITIS

In latent labyrinthitis the history is of the utmost importance, as these patients must have had repeated attacks of vertigo and nystagmus or one storm of long duration, or both. Either total deafness exists or rest of hearing only will be found. The spontaneous nystagmus is small and weak and is directed to both sides when looking in these directions. There is none when looking straight ahead, unless opaque glasses are used so that fixation of vision cannot occur. In such a case it is minimal and directed to the sound side. Fistula and caloric tests are negative. Movements of the head have no effect. The utmost care should be exercised in the diagnosis of these cases, because they may be mistaken for acoustic neuritis of long standing. Ten turnings give the same pathologic results as in circumscribed labyrinthitis. The ataxic symptoms are very slight when present.

To diagnose latent labyrinthitis all tests must be made. The negative are quite as important as the positive. The latter are usually under the normal.

PERILABYRINTHITIS

Perilabyrinthitis is most frequently associated with acute suppurative otitis media, but not infrequently with acute exacerbations of chronic middle-ear suppuration. The mastoid is always, and probably first involved. Systemic diseases, especially diabetes mellitus, predispose to it. When the process is acute the endolabyrinthitis is hyperemic, as is shown by rapid recovery of hearing following the simple mastoid or radical operation. When the perilabyrinthitis is of longer standing the type of endolabyrinthitis is more apt to be serous. The recovery of hearing in the serous type is relatively slow, depending largely on drainage of the perilabyrinthine spaces. Suppurative endolabyrinthitis can occur and does, especially in the course of diabetic mellitus. Sequestration is then most liable to follow. Otherwise this type can be differentiated from that occurring by other routes only by the history or postmortem.

The above are for the most part late diagnostic symptoms. The earlier symptoms are those of mastoiditis and the middle ear, plus the following, which may be grouped as positive and negative.

POSITIVE

Slower gradual onset of diffuse endolabyrinthitis.

Recurrent deafness with manifest vestibular symptoms accompanying acute exacerbations of chronic middle-ear suppuration.

Pain on pressure located particularly over superior part of mastoid process.

Frequency of associated facial paralysis.

Weber test localized in the diseased ear, as pointed out by Neumann.

NEGATIVE

Absence of the fistula symptom or attacks of vertigo such as occur in circumscribed labyrinthitis.

Infrequence of intracranial complications.

It is difficult to diagnose perilabyrinthitis really early. The importance of the diagnosis relates particularly to operative interference; that is, to the kind of operation.

Perilabyrinthitis is an extension of mastoiditis into cells which communicate directly with the mastoid cells. A typical theoretic case is as follows:

Spontaneous nystagmus first directed to the diseased side probably in the frontal plane, accompanied or not by nausea and vomiting. Reactionary falling backward, forward or sideward—progressive rather quick loss of hearing, but not absolute. In the meantime change of plane of the nystagmus to compound horizontal and rotary and directed to both sides but strongest to one side; finally rotary and directed to the good side only, with reactionary movements characteristic of rotary nystagmus. Absence of fistula symptom, probable absence of intracranial complications, unless it is of tuberculous origin; facial paralysis coming on late in the disease. Weber test localized in bad ear. Frequent association with systemic disease. Probable recovery of hearing after simple mastoid or radical operation. Possible recovery of facial palsy in the course of a year after radical operation if the systemic disease, when present, is cured or improved.

This is a new subject and I advance this picture for what it may be worth to those who may have opportunity to observe cases frequently from the very beginning. Acute severe cases of mastoiditis are very promising for such observations. In conclusion, for the sake of brevity I will say only that the conclusion arrived at is that the study of symptoms set forth enables us to make an earlier and more exact diagnosis.

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THE PRESENT STATUS OF VERTIGO CONSIDERED FROM A DIAGNOSTIC STANDPOINT *

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In the discussion of suppurative labyrinthitis before this section at the Chicago meeting in June, 1908, it was my privilege and good fortune to present the first paper to appear in the medical literature of this country, reporting the recent progress made in the diagnosis and treatment of labyrinthine diseases, as taught in the Vienna schools. Since then the literature on this subject has been added to very materially, notably by MacKenzie[1] of Philadelphia, Fridenberg,[2] and Richards[3] of New York, and Mr. Scott[4] of London, the last contributing some valuable new research data relating to the functions of the semicircular canals.[5]

My first contribution was rather a foreword, very briefly outlining the methods of functional tests of the semicircular canal system developed by the researches of Barany, Alexander and Neumann of Vienna. The basis of these tests was founded on the fact that stimulation of the peripheral end-organs of the eighth nerve produces vertigo, nystagmus, and disturbances of equilibrium. It is in the interest of the solution of the mechanism of these several manifestations, when dependent on pathologic conditions, that the present discussion is undertaken.

For a correct interpretation of vertigo, a phenomenon ubiquitous in extent and protean in type, it is necessary, first of all, to have a clear conception of the term. Equilibration, or the adjustment of the individual to space, and orientation, or the recognition of that adjustment, are very complex functions.

ORIENTATION

The faculty of orientation is exercised through the central and peripheral sense organs and any marked or sudden disturbance of this function, induced experimentally or pathologically, creates that disagreeable sensation of confusion, known as vertigo, due to a false conception of one's relative position to space or motion, and relatively its concomitant sensation of disturbance of equilibrium. It is self-evident that vertigo and disequilibration are made manifest through the same sense organs as are equilibration and orientation. For convenience of discussion these peripheral sense organs may be classified into three subdivisions: (1) the static labyrinth, the special equilibrium sense organ; (2) the eyes, or visual sense organs; (3) the deep muscles, joints, viscera, etc., the kinesthetic sense organs.

It is a well-recognized fact that the impulses conveyed by these several peripheral sense organs and their centripetal tracts are correlated in the cerebellum, by which the function of equilibration is established and maintained. It is a further well-recognized fact that a perversion of this function, when occasioned by a permanent lesion in one of these three sets of sense organs, will eventually be corrected by the other two, perhaps not absolutely but sufficiently for all practical purposes. It follows also that with a loss of the function of two sets of these sense organs there will be a relative increase in disturbances of equilibration and orientation.

This paper will be chiefly concerned with the type of vertigo (rotatory) which results from stimulation or irritation of the static labyrinth, the special sense organ of equilibration. Since pathologic phenomena are better comprehended when we have a clear conception of the physiologic functions and anatomic structure and arrangement of the particular organs or tissues involved, perhaps it were well, from a diagnostic standpoint, to make a brief reference to this phase of the subject—particularly as to the arrangement of the semicircular canals and the origin and distribution of the nerve and blood supply to the same. As regards the blood supply to the labyrinth the works of Shambaugh, Siebenmann, Schwalbe and Eichler should be consulted, and a most excellent paper by Shambaugh[6] treating this subject from a clinical standpoint, is worthy of consideration in this connection.

The geometrical arrangement of the semicircular canals in three principal directions of space gave rise to the original theory as to the functions of the labyrinth. At first the assumption was that the canals were asso-

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Mackenzie: Homeop. Eye, Ear and Throat Jour., 1909, xv, 17.
2. Fridenberg: Ann. Otol., Rhinol. and Laryngol., St. Louis, 1908, xvii, 670.
3. Richards: Ann. Otol., Rhinol and Laryngol., St. Louis, 1907, xvi, 561.
4. Scott: Proc. Roy. Soc. Med., Otol. Sec., p. 41, 1909.
5. From Scott's most excellent paper on "The Problems of Vertigo, etc." (Proc. Roy. Soc. Med., April, 1909.) I have quoted freely and adopted his tables, showing the detailed results of his research illustrating the three main types of labyrinthine nystagmus and comparing the hypotheses of convection currents and momentum currents

6. Shambaugh: Arch. Otol., New York, 1906, xxxv, 11.

ciated with audition, and they were supposed to mediate sensations of sound coming in any of the three main directions corresponding to their axes, or to analyze atypical sound directions by a proportional representation in the three dimensions.

Later investigations, from the time of Purkinje to Barany, by careful experiments on animals and man, developed the theory of a specific equilibristic function of the labyrinth. In analyzing the mechanism of this function it is important to bear in mind the anatomic structure, arrangement and relation of the labyrinth, and to remember we have to do with a bilateral, symmetrical structure; that each canal of a side corresponds in the same plane to a canal of the opposite side; the two external canals in the horizontal plane, the anterior or superior canal of one side with the posterior canal of the other side; that the ampullary bulbs of corresponding canals are at opposite ends; the ampulla of the right horizontal canal being on the right, while that of the contralateral canal is on the left; the ampulla of the right superior canal being in front, above and beyond that of its synergist, the left inferior being behind and below.

The anatomic structure, and the relations of the membranous labyrinth to its corresponding bony container, the osseous labyrinth, may be had by reference to the texts, and I will not discuss this phase of the subject more than to call attention briefly to the origin and communications of the eighth nerve. We shall appreciate the fundamental significance of this when we undertake to differentiate the manifestations or impulses due to stimulation or irritation of the static labyrinth, or the special equilibrium sense organ, from correlated manifestations or impulses originating from stimulation of the visual sense organs, the eyes, and the kinesthetic sense organs, the deep muscles, joints, etc.

The auditory nerve really consists of two nerves, the cochlear and vestibular, and has its origin from three roots situated in the medulla. The cochlear division has its origin from the accessory nucleus and is distributed to the cochlea. The vestibular division has its origin from the chief nucleus and Deiter's nucleus and is distributed to the vestibule and semicircular canals. The peculiar arrangement of the distribution of the labyrinthine nerve end-organs, or the hair cells, in the maculæ of the utricle and saccule and ampullæ of the semicircular canals, bears a basic relation to the mechanism of the phenomena of vertigo, nystagmus and disturbances of equilibrium. The last two manifestations can be readily understood when we remember that the portion of the vestibular nerve which arises in Deiter's nucleus communicates fibers to the nucleus of the motor nerves of the eye muscles and to the motor nucleus of the spinal cord on either side. Nystagmus is caused by impulses conveyed to the former, and disturbances of equilibrium by impulses conveyed by the latter.

THE TYPE OF VERTIGO AND THE VARIETIES OF NYSTAGMUS RESULTING FROM LABYRINTHINE STIMULATION

Labyrinthine vertigo, whether produced experimentally or pathologically, is always rotatory.

Labyrinthine vertigo is always associated either with nystagmus, or disturbances of equilibrium. The reverse of these phenomena does not hold, however, as disturbances of equilibrium may occur without vertigo.

All forms of vertigo may be associated with nystagmus, but some forms of vertigo may not be associated with nystagmus; that is, the ocular and kinesthetic forms.

Moreover, while rotatory vertigo associated with nystagmus is characteristic of labyrinthine irritation or lesion, it is not pathognomonic of it, for, as pointed out by Stewart[7] and Panse,[8] and verified by other observers, we may have rotatory vertigo and nystagmus during convalescence in cases of paresis of the eye muscles. In the latter instance the mechanism of the vertigo and nystagmus may be plausibly explained by assuming that the labyrinth is reflexly influenced by the stimulation resulting from the innervation of the eighth nerve communicated through Deiter's nucleus to the oculomotor muscles. The nystagmus occurs when the patient endeavors to turn the eyes attentively in the direction of the partly paralyzed muscle's action. I have recently observed a case with this rotatory type of nystagmus occurring during convalescence following paralysis of the left abducens muscle.

LABYRINTHINE NYSTAGMUS

We may conveniently divide labyrinthine nystagmus into three main types according to the direction of the excursive movements; however, there may be subdivisions as a resultant of a combination or association of the main types.

The three main types are designated, respectively, as horizontal, vertical and rotatory, according to the planes of direction of the nystagmus. A combination of the horizontal and vertical types results in a compromise between the two, or oblique nystagmus, or frequently we find the horizontal and vertical associated but not combined.

In discussing the directions of the planes of excursive ocular movements reference is had in relation not to space but to the planes of the orbit or eyeball. Thus in horizontal nystagmus the plane of oscillation is horizontal in relation to the horizontal plane of the orbit; in vertical nystagmus the plane of the oscillation is in relation to the vertical plane of the orbit; whereas in rotatory nystagmus the plane of oscillation is in the meridian of the eyeball at right angles to the anteroposterior axis.

Labyrinthine nystagmus is characterized by rhythmic movements and consists of a rapid and slow component. The direction of the nystagmus corresponds to the direction of the quick component. Thus we designate horizontal nystagmus as horizontal nystagmus to the right or left, according to the direction of the rapid movement. Similarly in regard to the vertical nystagmus according to the direction of the rapid movement up or down we designate it as vertical nystagmus upward or downward. The same rule applies to rotatory nystagmus.

The rapid movement is usually referred to as the major movement; however, the slower movement is the primary movement, or the true labyrinthine reflex, while the rapid movement is secondary or voluntary.

MECHANISM OF NYSTAGMUS

"Stimulation of only one ampulla produces a simple, primary reflex deviation of the eyes in one direction without nystagmus. If now the endeavor is made to turn the eyes in the opposite direction a sequence of fleeting images sweeps across the retina in the opposite direction and the eyes are jerked in rapid pursuit of the

7. Stewart: Deutsch. med. Ztg., 1895, p. 511.
8. Panse: Arch. Otol., 1902, xxxi, 467.

seemingly moving object which is momentarily fixed; but instantly the primary labyrinthine movement again gains control, a repetition of the fleeting images across the retina occurs, followed by the secondary rapid or major movement of pursuit, and this continues until the stimulation is annulled and the nystagmus ceases."[5] We have an illustration of this in the phenomenon *déviation conjugée*, which represents a true reflex phase of nystagmus produced by unilateral irritation in the semicircular canals, vestibular nerve, or Deiter's nucleus. This may be demonstrated by placing the patient with a rhythmic nystagmus under general anesthesia, or may be observed sometimes in the comatose stages of cerebral abscess complicating labyrinthine suppuration. In both instances we have deviation of the eyes in the direction of the slow movement, proving that it is the primary or unconscious reflex movement, occurring during the unconscious state, while the quick movement, though the rapid and more intense, is the secondary or voluntary movement occurring during the conscious state. Therefore, the slower movement represents the vestibular reflex, while, on the other hand, the rapid movement represents the voluntary or cortical one. The maximum intensity is experienced when the eyes are turned in the direction of the quick component, and *vice versa*.

With ocular vertigo and nystagmus, closure of the eyes affords marked relief, but in the rotatory or vestibular form it has no influence; whereas in the kinesthetic form both the vertigo and the disturbance of equilibrium are exaggerated. This is a most important differential diagnostic test in the several forms of nystagmus.

Before discussing the pathologic forms of labyrinthine nystagmus let us get a physiologic view by analyzing the mechanism of some of the functional tests in developing experimental nystagmus: (1) thermal tests; (2) momentum tests.

The physical effects of the thermal stimulus depend on the variations in density of the watery solutions at different temperatures. According to well-known physical laws, when water cools the density of the cooler particles increases and they fall, and conversely, when water is heated the density of the heated particles is decreased and they rise. If we cool the surface of a bowl of water we get a descending convection current, and if we heat it we get an ascending convection current. The walls of the labyrinth and the fluid therein—the perilymph and the endolymph—are no exception to this rule. By cooling or heating the middle ear and outer wall of the labyrinth we get descending or ascending convection currents passing through the ampullæ of the superior and external semicircular canals, respectively, depending on the position of the head; through the former when the head is erect and through the latter when the face is directed upward or downward. On account of the depth of the ampullæ of the posterior semicircular canal the thermal tests are not practicable. The intensity of the convection currents, and reactions (vertigo, nystagmus and disturbances of equilibrium) resulting therefrom, depends on the suddenness, degree and duration of the alteration of the temperature of the outer wall of the labyrinth and the fluid adjacent thereto.

The momentum tests have a wider field of application than the thermal tests. The character of the physical effects of momentum depends on the direction of the motion, either in curved lines and circles or in more or less straight lines, vertically, antero-posteriorly, or laterally; also on the position of the head.

In case of the circular motion or rotation the semicircular canals, with their ampullæ, are affected, and the intensity and extent of this effect depends on the angular velocity, tangential speed and duration of rotation. As observed by Scott:[5]

> Viewing the matter physically in order to estimate the momentum set up by rotation we must pay regard to the angular velocity, tangential speed and duration of rotation. The angular velocity is determined by computing the time of one complete revolution of 360°, and stated as so many degrees per second. If we adopt a uniform angular velocity of, say, 360° in five seconds, the approximate tangential speed varies directly with the distance between the semicircular canals and the axis of rotation; this distance can be obtained by measuring the radius of the curve of revolution described by the external auditory meatus, which will give the approximate relative position of each set of the semicircular canals. It will be obvious that when the patient reclines on the turntable with the head half a meter from the axis of rotation, and the table is turned at the uniform angular velocity of 360° per five seconds, the tangential speed of the head, and therefore the labyrinth and of the endolymph, will be greater than when the head is only a quarter of a meter from the axis of rotation. Similarly, if the patient be seated over the axis of rotation with the labyrinths equidistant from the axis of rotation, the tangential speed will be equal in the two labyrinths.

The theory most accepted now as to the effects of thermal stimulus and rotation on the semicircular canal system is that they cause currents of endolymph through the canals, either from the canal through the ampulla to the utricle or from the utricle through the ampulla to the canal. These currents, pressing or dragging on the hair cells in the ampullæ, stimulate the cells and provoke nystagmus, vertigo and disturbances of equilibrium. Owing to the observation that it requires greater effort to provoke nystagmus by rotation in one direction than by rotation in the opposite direction, particularly if the labyrinth on one side is destroyed or not functionating, the theory has been advanced that the several ampullary nerves have a principal and subordinate function. The more plausible assumption is, considering the marked inequality of the sectional areas of the semicircular canal and its ampulla, the ratio being about 1 to 25, that it requires more effort and time by rotating the head in one direction to establish a current from the ampulla to the canal—that is, from a broad to a narrow channel—than when rotating the head in an opposite direction to establish a current from the canal to the ampulla—from a narrow to a broad channel.

In case of motion in more or less straight lines the semicircular canals and ampullæ are not affected, but the utricle and saccule and their contents, i. e., the endolymph and the sensory hair cells of the maculæ of the utricle and saccule. In this instance the intensity and extent of the effect depends on the suddenness, speed and duration of the motion. We may cite as an illustration the nystagmus and vertigo of *mal de mer* or sea-sickness. Ordinarily the arc described by the rolling and pitching of a ship is too small and the angle of velocity and tangential speed too slow to occasion momentum currents in circles as in the semicircular canals, but such currents as are established are in more or less straight lines in the sacs of the utricle and saccule, corresponding to the direction of the lines of the motion of the ship but opposite in direction, and the vertigo, nystagmus, etc., is due to the irritation occasioned by the increase or dimunition of weight on or dragging of the hair cells of the two maculæ.

The following tables from Scott illustrate the methods of provoking the three main types of labyrinthine nystagmus and indicate the direction of the deflection of the three sets of fibrillæ which would be produced in accordance with the laws of convection and momentum considered in relation with known anatomic structure:

TABLE 1.—ROTATORY (COUNTER-CLOCKWISE) NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE RIGHT *

BY THERMAL METHODS

Cold water irrigation	Left ear	Head erect
Hot water irrigation	Right ear	Head erect
Hot water irrigation	Left ear	Head inverted
Cold water irrigation	Right ear	Head inverted

BY ROTATION AROUND A VERTICAL AXIS

Rotation counter-clockwise	Face directed downward
Rotation clockwise	Face directed upward

* For an account of technic adopted by Barany see Thomas Guthrie's digest (Brain, 1906, p. 383); also Mackenzie's abridged translation (Jour. Laryngol., Rhinol. and Otol., xxiv, No. 2). The present series of observations was carried out by methods evolved independently of Barany's, though essentially similar. The conclusions were also formulated before the results of Breuer's investigations were studied.

TABLE 2.—ROTATORY (CLOCKWISE) NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE LEFT *

BY THERMAL METHODS

Cold water irrigation	Right ear	Head erect
Hot water irrigation	Left ear	Head erect
Hot water irrigation	Right ear	Head inverted
Cold water irrigation	Left ear	Head inverted

BY ROTATION AROUND A VERTICAL AXIS

Rotation clockwise	Face directed downward
Rotation counter-clockwise	Face directed upward

* The effect of rotation on the eye-movements depends on the angular velocity and tangential speed. A certain minimum velocity is necessary, and this varies somewhat in different persons. Given the appropriate angular velocity and appropriate tangential speed, one finds that rotation will induce the same type of nystagmus with the same directional characters whether both labyrinths are functional or whether one labyrinth had become defunctive.

TABLE 3.—HORIZONTAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE RIGHT *

BY THERMAL METHODS

Cold water irrigation	Right ear	Face downward
Hot water irrigation	Left ear	Face downward
Hot water irrigation	Right ear	Face upward
Cold water irrigation	Left ear	Face upward

BY ROTATION AROUND A VERTICAL AXIS

Rotation counter-clockwise	Head erect
Rotation clockwise	Head inverted

* Inversion of the head was conveniently obtained by complete backward extension of the head over the end of a special rotating table, so that the head was about 10 in. from the axis of rotation.

TABLE 4.—HORIZONTAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES TO THE LEFT

BY THERMAL METHODS

Cold water irrigation	Left ear	Face downward
Hot water irrigation	Right ear	Face downward
Hot water irrigation	Left ear	Face upward
Cold water irrigation	Right ear	Face upward

BY ROTATION AROUND A VERTICAL AXIS

Rotation clockwise	Head erect
Rotation counter-clockwise	Head inverted

TABLE 5.—VERTICAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES UPWARDS (IN RELATION TO THE ORBIT)

BY ROTATION METHODS

Rotation counter-clockwise	Right side of head downward
Rotation clockwise	Left side of head downward

TABLE 6.—VERTICAL NYSTAGMUS OBSERVABLE DURING ATTENTIVE DEVIATION AND FIXATION OF THE EYES DOWNWARD

Rotation clockwise	Right side of head downward
Rotation counter-clockwise	Left side of head downward

TABLE 7.—DEFLECTION OF THE FIBRILLÆ OF THE SUPERIOR SEMICIRCULAR CANAL ON ONE SIDE *

BY THERMAL METHODS

Direction of Deflection of Superior Fibrillæ.	Produced By	Position of Head.	Resulting Type of Nystagmus.	Direction of Maximum Intensity.
From canal to utricle.	Cold.	Erect.	Rotatory.	Non-stimulated side
From canal to utricle.	Hot.	Inverted.	Rotatory.	Non-stimulated side
From utricle to canal.	Hot.	Erect.	Rotatory.	Stimulated side
From utricle to canal.	Cold.	Inverted.	Rotatory.	Stimulated side

* No reactions are obtained where the method is applied to a defunct labyrinth.

TABLE 8.—DEFLECTION OF THE FIBRILLÆ OF ONLY ONE SUPERIOR SEMICIRCULAR CANAL BY ROTATION WHEN ONLY THE RIGHT LABYRINTH IS FUNCTIONAL, THE LEFT BEING COMPLETELY DEFUNCT

Direction of deflection of superior fibrillæ in right side.	Direction of rotation.	Position of head.	Type of nystagmus.	Direction of maximum intensity.
From canal to utricle.	Clockwise.	Face downward.	Rotatory.	Left
From canal to utricle.	Counter-clockwise.	Face upward.	Rotatory.	Left
From utricle to canal.	Counter-clockwise.	Face downward.	Rotatory.	Right
From utricle to canal.	Clockwise.	Face upward.	Rotatory.	Right

TABLE 9.—DEFLECTION OF THE FIBRILLÆ OF ONLY ONE SUPERIOR SEMICIRCULAR CANAL BY ROTATION WHEN ONLY THE LEFT LABYRINTH IS FUNCTIONAL, THE RIGHT BEING COMPLETELY DEFUNCT *

Direction of deflection of superior fibrillæ in left side.	Direction of rotation.	Position of head.	Type of nystagmus.	Direction of maximum intensity.
From utricle to canal.	Clockwise.	Face downward.	Rotatory.	Left
From utricle to canal.	Counter-clockwise.	Face upward.	Rotatory.	Left
From canal to utricle.	Clockwise.	Face downward.	Rotatory.	Right
From canal to utricle.	Counter-clockwise.	Face upward.	Rotatory.	Right

* Deflection of the fibrillæ of both superior semicircular canals simultaneously. The nystagmus evoked by rotation clockwise and counter-clockwise with the face upward and face downward is precisely the same in type and directional characters when both labyrinths are intact as when only one is functional.

TABLE 10.—DEFLECTION OF THE FIBRILLÆ OF THE EXTERNAL SEMICIRCULAR CANAL, EITHER SIDE SINGLY

BY THERMAL METHOD

Direction of Deflection of External Fibrillæ.	Produced By	Position of Head.	Resulting Type of Nystagmus.	Direction of Maximum Intensity.
From canal to utricle.	Cold water.	Face downward.	Horizontal.	Stimulated side.
From canal to utricle.	Hot water.	Face upward.	Horizontal.	Stimulated side.
From utricle to canal.	Hot water.	Face downward.	Horizontal.	Non-stimulated side.
From utricle to canal.	Cold water.	Face upward.	Horizontal.	Non-stimulated side.

TABLE 11.—DEFLECTION OF THE FIBRILLÆ OF ONLY ONE EXTERNAL SEMICIRCULAR CANAL BY ROTATION WHEN ONLY THE RIGHT LABYRINTH IS FUNCTIONAL, THE LEFT BEING COMPLETELY DEFUNCT *

Deflection of the External Fibrillæ.	Direction of Rotation.	Position of Head.	Type of Nystagmus.	Direction of Maximum Intensity.
From canal to utricle.	Counter-clockwise.	Erect.	Horizontal.	Right
From utricle to canal.	Clockwise.	Erect.	Horizontal.	Left

* The corresponding reactions are reversed when the rotation is made with the head inverted.

TABLE 12.—DEFLECTION OF THE FIBRILLÆ OF ONLY ONE EXTERNAL CANAL BY ROTATION WHEN ONLY THE LEFT LABYRINTH IS FUNCTIONAL, THE RIGHT BEING COMPLETELY DEFUNCT *

Deflection of the External Fibrillæ.	Direction of Rotation.	Position of Head.	Type of Nystagmus.	Direction of Maximum Intensity.
From utricle to canal.	counter-Clockwise.	Erect.	Horizontal.	Right
From canal to utricle.	Clockwise.....	Erect.	Horizontal.	Left

* The corresponding reactions are reversed when the head is inverted. Deflection of the fibrillæ of both external semicircular canals simultaneously when both labyrinths are functional. The nystagmus produced by rotation clockwise and counter-clockwise with the head erect or with the head inverted is precisely the same in type and directional characters when both labyrinths are intact as it is when only one labyrinth is functional.

TABLE 13.—DEFLECTION OF THE FIBRILLÆ OF THE POSTERIOR SEMICIRCULAR CANAL, EITHER SIDE SINGLY, THE ONE BEING DEFUNCT, OR BOTH SIDES SIMULTANEOUSLY, BOTH LABYRINTHS BEING FUNCTIONAL

Direction of Deflection of the Inferior Fibrillæ, i.e., of Posterior Canal.	Direction of Rotation.	Position of Head.	Type of Nystagmus.	Direction of Maximum Intensity.
From utricle to canal.	Clockwise.....	Right side downward.	Vertical.	Downward
From utricle to canal.	Counter-clockwise.	Left side downward.	Vertical.	Downward
From canal to utricle.	Clockwise.....	Left side downward.	Vertical.	Upward
From canal to utricle.	Counter-clockwise.	Right side downward.	Vertical	Upward

DEDUCTIONS FROM THE TABLES

Study of the accompanying tables reveals that stimulation of the ampullæ of the horizontal and posterior semicircular canals or deflection of the fibrillæ from utricle to canal, or *vice versa,* imparts similar impulses, provoking deviation of the eyes in attentive fixation, and, when the stimulation is sufficiently intense, nystagmus in the direction of the deflection of the fibrillæ. With stimulation of the ampullæ of the superior semicircular canals the conditions are reversed; the nystagmus provoked takes place in the direction opposite to the deflection of the fibrillæ. Thus in the former instances of the horizontal and posterior canals, deflection of the ampullary fibrillæ from the utricle to the canal produces nystagmus toward the opposite side or in the direction of the deflection of the fibrillæ; but in the latter instance of the superior canal, deflection of the fibrillæ from the utricle to the canal produces nystagmus to the same side, or in the opposite direction to the deflection of the fibrillæ.

The diagnostic importance of this observation is evident from a clinical viewpoint. Thus spontaneous horizontal nystagmus to the left would indicate some probable lesion in the right vestibule, while rotatory nystagmus to the left would indicate some lesion in the left vestibule. A combination of horizontal nystagmus to the left and rotatory nystagmus to the right would be stronger evidence still of some lesion of the right vestibule. Again, rotatory nystagmus to the right, associated with oblique nystagmus downward and to the left (the latter being a combination of horizontal and vertical nystagmus), would indicate some irritation or lesion in the right vestibule. Similarly other deductions may be drawn from a study of the directional character of nystagmus. We must be careful in our analyses, however. For instance, in a case of spontaneous nystagmus associated with labyrinthine fistula outside the vestibule (say the fistula is situated in the right osseous horizontal canal), provided the membranous canal and ampulla are intact, thermal and momentum tests will give the normal reaction (see tables); but in this case should spontaneous nystagmus be present it would be horizontal in character and directed to the right or to the same side as the lesion, whereas usually with spontaneous horizontal nystagmus to one side we would infer vestibular lesion on the opposite side. The confusion occasioned in such cases, particularly if bilateral middle-ear suppuration or involvement exists, is strikingly illustrated in a similar case cited by Scott. In such a condition, however, if the osseous fistula happens not to be protected by cholesteatomatous masses, etc., meatal air compression will elicit horizontal vertigo to the same side and clear the diagnosis. The mechanism of spontaneous nystagmus in this case, according to the above tables, Ewald's experiments and other clinical observers, is due to the impulse proceeding from the canal to the ampulla. Scott explains the mechanism of the nystagmus in these cases by assuming that the impulse is produced by the vascular granulation tissues situated at the seat of the fistula. Should the fistula be situated in the superior canal under like conditions (vascular granulation, and ampullæ functionating), if spontaneous nystagmus occurred it would be rotatory, but to the opposite side. With the fistula situated in the vestibule, under like conditions, the presence of spontaneous nystagmus would be rotatory to the same side and horizontal to the opposite side.

Furthermore, functional tests, in cases of normal labyrinths, have shown that if the stimulation be the same on either side no nystagmus results, however intense the stimulation. This may be demonstrated by the thermal test, by using hot or cold water from the same container, to which is attached two tubes, one tube being inserted in either ear, and the injections made simultaneously. In other words, to produce vertigo, nystagmus and disturbances of equilibrium, there must be a preponderance of stimulation on one side sufficiently intense to imbalance the function of the mediating sensory organs and cause a perversion or misinterpretation of the impulses produced by said stimulation.

This brings us to the consideration of a new hypothesis promulgated by an eminent London authority in explanation of unilateral ablation nystagmus.

ABLATION NYSTAGMUS

Preliminary to an analysis of this hypothesis attention may be called to some of the characteristics of ablation nystagmus. It is well known that spontaneous nystagmus does not occur after removal of the labyrinth in children, rarely after ablation in adults of 35 or 40 years of age who have normal vascular systems, but that it is more or less frequent for a limited period following destruction of the labyrinth in persons over the latter age—provided the remaining labyrinth is functionating. The character of the nystagmus may be rotatory, horizontal or oblique, or a combination of these, and vary in intensity and duration. If there is but one of the types present it is usually the rotatory, and directed toward the sound side; if two types are present they are the rotatory and horizontal, the rotatory directed to the sound side and the horizontal to the side of the ablation; if all three types are present the horizontal and vertical are usually combined into the oblique.

As time lapses the sensory end organs of the sound labyrinth become inured to one-sided stimulation and gradually acquire a disregard of the disproportionate unilateral impulses, and then the nystagmus begins to

lapse also. If the three types are present the vertical element disappears first, the horizontal next and the rotatory last.

An analysis of the characteristics, directional and otherwise, of ablation nystagmus (see tables) shows that it corresponds to the type of nystagmus resulting from vestibular stimuli causing a simultaneous deflection of the ampullary fibrillæ of a normal labyrinth (from the utricle toward the superior, horizontal and posterior semicircular canals respectively); the deflection being upward in the superior ampulla, and backward and downward in the horizontal and posterior ampullæ. Hence the question arises, Whence the origin of the stimuli or impulses provoking ablation nystagmus? Scott attributes the source of these stimuli, in many instances, to the influence of carotid pulsation. On account of the relation of the internal carotid artery to the labyrinth, in its passage through the petrous portion of the temporal bone, particularly where it bends sharply forward and upward in front of the cochlea, the assumption is that the force of the heart-beat transmits impact waves to the walls of the vestibule, and that the direction of such waves is chiefly upward and backward, being reflected from the convex arch of the carotid artery. Should such impaction waves occur they would be directed upward and backward and therefore cause deflection of the fibrillæ of the superior ampulla upwards, and of the fibrillæ of the horizontal and posterior ampullæ backwards, associated with the type of mystagmus such deflection would produce (see tables) rotatory nystagmus to the stimulated side, horizontal and vertical nystagmus (or combination of the last two—oblique nystagmus) to the non-stimulated side. And we would naturally infer that the intensity of the nystagmus would be proportionately exaggerated the stronger the impulse wave thus transmitted; and *vice versa*, the weaker the impulse waves, the less pronounced the nystagmus. Clinical observations and experiments have abundantly confirmed this deduction and furnished the foundation for Scott's hypothesis of impaction waves causing spontaneous nystagmus. In corroboration of the approximate correctness of this hypothesis he cites cases in which the spontaneous nystagmus following unilateral labyrinth destruction was enhanced when the force of the circulation was increased by bodily exercise and violent muscular exertion, and a diminution or cessation of nystagmus when the body was put at rest. But especially convincing was the report of the influence of the carotid pulsation on the spontaneous ablation nystagmus in eight consecutive cases. On compression of the common carotid on the side of the destroyed labyrinth no effect was noted, whereas non-compression of the common carotid on the side of the normal labyrinth showed a complete arrest of the nystagmus in each case, continuing as long as compression was maintained and returning when the compression was stopped. The direction of the nystagmus was toward the side of the destroyed labyrinth.

Furthermore, corroborative evidence of a negative character is furnished in cases where a unilateral defunct labyrinth is of long standing. In such cases the cessation of the nystagmus results from the ampullary end-organ becoming accustomed to or acquiring a disregard of the impulses conveyed by the impaction waves, which in the beginning deflected the fibrillæ from the ampullæ toward the canal. Latterly, after the cessation of the nystagmus, if we compress the carotid on the side of the normal labyrinth, by obviating the impaction wave, we create an impulse in the opposite direction or a relative deflection of the fibrillæ from the canals toward the vestibule. In this instance we should have rotatory nystagmus toward the negatively stimulated side or the side of the destroyed labyrinth, or in the direction opposite to the deflection of the fibrillæ. We find this so in practice.

Other evidence in favor of this theory is the occurrence of spontaneous nystagmus comparatively only after the age of beginning hardening or loss of elasticity of the arteries, whereby the force of the impaction waves is increased and correspondingly the intensity of the nystagmus. Mr. Scott's hypothesis of the impaction wave causing unilateral ablation nystagmus, considered from a physiologic, anatomic and experimental viewpoint and supported by evidence of a collateral nature, is plausible, and the greatest step in advance made in the solution of the problem of vertigo and the explanation of the mechanism of nystagmus since the contributions to the subject by Barany and Alexander.

CONCLUSIONS

The internal ears are the special sense organs of equilibrium. With the internal ears we recognize (orientation) and maintain our relations to space (equilibration).

The visual sense organs (the eyes), and the kinesthetic sense organs, (the muscles, etc.), are accessory sense organs of equilibrium and are coordinated with the special sense organs of equilibrium (the internal ears), through the mediation of the cerebellum.

The two special sense organs of equilibrium (the internal ear of either side), are normally symmetrical in structure and function, and any factor whatever, whether it be physiologic, experimental or pathologic, which innervates, stimulates or irritates one of these twin organs in excess of the other (or on the other hand accomplishes the same thing through enervation, depression or destruction of one in excess of the other), in that measure tends to or creates proportionately a disturbance of their joint functions—equilibration. If the disturbance of equilibration is sufficiently marked or intense we also get nystagmus and that unpleasant and complex phenomenon termed vertigo.

Finally, it must be acknowledged that not yet unravelled is the mystic arcanum of the mechanism of the complex labyrinthine function of equilibration and orientation, or the mechanism of the perversion or disturbance of that function as manifested by vertigo, nystagmus and disequilibration; but the great interest in research work now being directed along these paths augurs a satisfactory solution soon.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HOLINGER, FLETCHER AND DAVIS

DR. A. B. DUEL, New York: I have watched with keen interest the rapid advances which have been made during the past few years in this branch of our specialty. From an unknown and unexplored field, surgery of the labyrinth is rapidly developing into a well-known and well-managed one. This is due to the fact that this small and difficult field harbors the end-organs of two most delicate special senses, viz., those of hearing and orientation. By perfection of methods of examining these functions and careful observation of the alterations in them produced by various diseases affecting the

labyrinth we have learned to fix accurately the position and extension of these lesions. We are able to say with much certainty, this patient has a perilabyrinthitis; this, an acute circumscribed suppurative labyrinthitis; this, an acute diffuse suppurative labyrinthitis; this, a manifest lesion; this, a latent one; this patient has a fistula; this probably has not a fistula.

Operative indications have been laid down in a most dogmatic way, depending on the presence or absence of certain definite indications. It needs no wise man to predict that these indications, exact as they may seem at present, will, when matured by long experience, be somewhat modified. We are too prone to be satisfied with a few rules which may be easily observed without knowing the reasons why these rules were made. Too many cases of patients operated on after observation of certain symptoms are being reported by men who have not given sufficient attention to the more difficult question of why these symptoms appeared. The phenomena of vertigo, nystagmus, ataxia, for instance, bear the same relation to the lesion or irritation in the vestibular apparatus as the absent patellar reflex and spastic gait of locomotor ataxia do to pathologic lesions in the cord causing it. No one would contend that he understood tabes because he recognized these characteristic symptoms, and likewise he should not feel that he understands suppurative labyrinthitis because he observes certain prominent features of the disease.

The function of orientation is a nice sense presided over by the vestibular apparatus; it is intimately associated with equilibration and brings this about by impressions through Deiters' nucleus, to the oculomotor centers on one hand, and to the motor neurones of the cord on the other. To accomplish this with perfect accuracy a double system is essential, just as binocular vision is necessary for judging distance, and binocular hearing for judging direction. In other words, angulation is necessary to nicety in sight, hearing, or orientation.

If the position of the semicircular canals be carefully observed, it will be noticed that the superior verticals lie at right angles to each other, the direction of their planes being from behind, forward and outward in either direction. The posterior verticals, at a lower level, are at right angles to the superiors on the same side and to each other, the direction of their planes being from before, backward and outward. The horizontals are so arranged that movements sidewise produce a current by the same movement, in one toward the ampulla, in the other away from it. As a result the canals work in pairs, and it becomes impossible to think of experiments by movements of the head, or whirling of the individual, which do not influence more than one canal at the same time. In fact, in the normal individual all forward and backward movements of the head must produce impressions from all four vertical canals at the same time and all coordinate movements of the eyes and muscles are the resultant of all these impressions. Now all impressions of motion in space resulting normally from orientation (the vestibular sense), come from currents set up in the endolymph by these motions. This impression results reflexly in movements of the eyes and a certain tension in the muscles to maintain equilibrium. Any upset in this delicate sense will result in subjective sensation of motion and reflex efforts to compensate for them, thus bringing about the phenomena of acute vestibular irritation—vertigo, nausea, vomiting, nystagmus—the direction and character depending on the nature and extent of the irritation.

Equilibration can soon be accomplished by practice, without orientation, by compensation, by means of vision and muscle sense. Hence the phenomena of acute vestibular irritation soon disappear and altered reflex phenomena have to be sought after and brought about by the special tests, as you have heard.

The man with only one labyrinth learns to do without the missing labyrinth just as he would without one eye or one ear, and he does without both just as he would without both eyes or ears. He learns to equilibrate without orientation. Is he just as well off? Certainly not; he feels the need of the faculty in any new environment or situation. Try a man who has just lost one labyrinth and acute symptoms have disappeared—vertigo, nystagmus, ataxia, in ordinary situations—ask him to walk up or down an incline. He will be unable to do it at first, but by repeated trials he will soon learn. He has, in other words, learned to equilibrate with faulty orientation. After he has learned to do these things in the light, try him in the dark. He will fail again, but will learn with practice. His education in compensation for lack of sense of orientation will be analogous to that of a blind man learning to walk with confidence and just as difficult. We have only touched the outside edge of the subject of labyrinthine phenomena, although we have already learned to interpret them sufficiently to recognize danger signals and have grown so bold as to invade the domain of the labyrinth with impunity.

PROF. HOLGER MYGIND, Copenhagen, Denmark: So far as etiology is concerned, there is one point which I do not think has been brought out, and that is the traumatic cause—suppuration produced through operation, and especially due to radical operation. I have seen a considerable number of these cases, and I think that the labyrinthine suppuration caused by radical operation is much more frequent than most of us think. These cases that occur after radical operations have a very different course. I may divide them into three groups:

1. The very light cases in which no symptoms at all are observed by the patient or by the medical man. Even if such patients are asked if they feel at all ill after operation, they often reply, "No, I did not notice anything at all." As Dr. Fletcher pointed out, there is no proof that labyrinthine symptoms have not been present, only they have been overlooked, and the physician observes that there has been labyrinthine involvement; perhaps a week or more after operation he discovers that the patient is totally deaf in that ear and if the function of the labyrinth be examined it is found that it is lost. These cases, I think, teach a great deal; especially that we should be careful with our indications for radical operation. My experience is that our indications for simple mastoid operation ought to be very wide, for I believe the risk we run in acute cases is very small considering the risk the patient runs when he is not operated on. On the other hand, my indications for radical operation are very limited, so limited that in a discussion with Prof. Körner of Rostock I had even a more conservative view than he has, and he is very conservative on the whole. I think that when a patient with chronic suppuration of the middle ear has fairly good hearing we should be careful about performing the radical operation. If both ears are affected, we should be exceedingly careful and only do the operation when occasion demands it very strongly.

2. In postoperative labyrinthine suppurations in which there are distinct labyrinthine symptoms, the patient, shortly after operation, or sometime after, gets distinct labyrinthine symptoms—nausea, vomiting, noises in the ear, etc.—and in these cases one not infrequently sees paralysis of the facial nerve. What I say now it is not necessary to say to surgeons of great experience, but to the younger members here I say: After an operation, either radical or simple, if in the course of a few days a facial paralysis develops, look well to the labyrinth. It is often said that paralysis is due to blood-clot, pressure of the dressing, or something like that, but in my experience it is frequently caused by labyrinthine suppuration; and, of course, there is a close anatomic connection between the facial nerve and the labyrinth.

3. There is a group of cases of postoperative labyrinthitis, which is not so large, but which is very important; this is a class in which the labyrinthine suppuration develops explosively and leads to diffuse meningitis. The prognosis in these cases is very grave indeed; I have seen only one such patient recover. That was a boy of sixteen who had labyrinthine suppuration and diffuse leptomeningitis and recovered after craniotomy, excision of the dura, etc.

I consider an operation on the labyrinth a very difficult operation. One of the greatest difficulties is to avoid breaking down the bony wall of the Fallopian canal.

DR. GEORGE F. COTT, Buffalo: An interesting point raised by Professor Mygind is the question of traumatic cases, following the radical operation. Some operators have been luckier than others. In 10 years I have done 102 radical operations and have had only one patient die. How often do these cases occur?

There are not many reported in this country. In the last 3 or 4 years there have been some isolated cases, but I suspect that there are many more than have been reported. I have seen 8 or 9; 3 of these patients were operated on, and the labyrinth drained; and in 3 the radical operation was done; the others are still under observation with no operation. If that number occurs in a city of 450,000 why have not large numbers occurred in cities like Chicago and St. Louis? They no doubt do occur, but are overlooked. I do not know whether the otologists will be more conservative or not; I am afraid not. I think these patients will have to go to operation, although it is extremely difficult, or they will die. To wait until the patient is *in extremis* is bad policy. The physician must take the chance and so must the patient. Of course, everything must be thoroughly considered.

In this country we have not yet decided the question of time to operate. Jansen in Berlin two years ago read a paper in which he told of over 100 operations on the labyrinth which he had done with a death-rate of 29 per cent. In the next 100 cases he will have no such death-rate, because now we have more definite symptoms and the patient has a much better show.

As to the question of diagnosis, no man would think of operating on the labyrinth unless deafness were present. When deafness is complete and the other definite symptoms are present it is well to operate. The operation necessarily belongs to the otologist and not to the general surgeon, and I believe the general surgeon will never perform it as he does other operations about the ear, nose and throat.

Suppose a patient has caries of the middle ear, with a very long history; suppose he has had perilabyrinthitis, and is in the latent condition in which the least irritation will set up further trouble—what are you going to do? If you operate radically the chances are ten to one that he will die unless the labyrinth is drained. Such cases have occurred and I do not doubt that they are the cases to which Professor Mygind refers in which the patient died after radical operation from involvement of the labyrinth.

Another point, as to the hearing after exfoliation of the cochlea in suppuration of the labyrinth: I find in Bezold's writings that he cites a number of cases in which a certain amount of hearing existed after the cochlea had been cast off. Politzer mentions that it may be possible for some hearing to exist without the labyrinth. Before Bezold's death I think he made the claim that it is absolutely impossible to hear anything after the labyrinth has been destroyed. In this country, Dench and some others have operated in a certain number of cases, drained the labyrinth, and after the patient has recovered found that there was a certain amount of hearing left. I take the stand that it is impossible to hear after destruction of the labyrinth. Bezold says that in the cases reported, bone conduction on the other side has been neglected.

DR. CULLEN F. WELTY, San Francisco: I wish to show a specimen of the complete labyrinth operation, and to call attention to the large amount of dura that is uncovered, giving free access to any operation of the cerebellum, also to call to attention the facial nerve in the canal; the cochlea and canals have been entirely destroyed. This operation is not so difficult as Prof. Mygind would have us believe. I have seen ten or twelve similar operations and have done three myself, and have not seen a case of facial paralysis. My patients are all well. Dr. Duel hit the nail on the head when he said: "On the careful examination depends the whole condition." In the various ear hospitals it has been repeatedly demonstrated that there is a mortality of from 10 to 12 per cent. Prof. Mygind says that 65 per cent. of the cases of meningitis are infected by way of the labyrinth. When to operate and when not to operate is the all-absorbing question.

OPERATIVE CHART*

	Cochlea.	Excitability of Vestibular Apparatus	Fistulæ.	Spontaneous Nystagmus.	Operation.
I	+	+	+	+	No
				—	No
II	—	+	+	+	Eventual
				—	No
III	+	—	+	+	Operation
				—	Eventual
IV	+	—	—	+	Eventual
				—	Eventual
V	—	—	+	+	Operation
				—	Operation
VI	—	—	—	+	Operation
				—	Operation
VII	—	+	—	+	No
				—	No

* Neumann, Heinrich: Indikationen für die operative Eroffnung des Labyrinthis.

I here submit an operative chart. Grouped with the other a mistaken diagnosis is almost impossible. Use this last chart until you thoroughly master the situation from a pathologic standpoint and by that time it will be very clear indeed. There is a test that has not been spoken of; indeed, it is very important for those of us who will dare to operate without a proper examination, as I did in one case only recently. However, I operated under stress of circumstances that does not often happen. As I was completing my operation I found a good-sized fistula of the horizontal canal; besides, the facial nerve was uncovered, posteriorly. I had never seen the patient prior to operation and was leaving the following morning to attend the American Medical Association Session. By removing the anesthetic for a short time so that the patient might sufficiently recover for the reaction, a stream of cold water was directed into the ear. In a short time there was a steady pull of the whole eye to the opposite side; this is the reaction of functionating canals. This cleared the diagnosis wonderfully. Dr. Shambaugh says that a patient should not be operated on so long as there is hearing left. I am sure he has not thought of this in a serious way.

At the Otologic Congress at Budapest, Dr. Neumann reported a large number of cerebral complications showing conclusively that 75 per cent. of such cases were the result of acute exacerbation of chronic ear suppuration. Now should we follow Dr. Shambaugh's suggestion we should do the radical operation on patients with a latent labyrinth suppuration (patients who hear and do not react to the caloric test). As I have shown by Neumann's publication that the acute exacerbations are particularly dangerous, so it will be seen by this radical ear operation an acute exacerbation of the latent labyrinth suppuration is produced with possible fatal termination. According to the Vienna school of otology the labyrinth should be removed at the time the radical operation is done or left alone entirely. The disturbances of equilibrium and the tinnitus that one of the speakers refers to following the labyrinth operation are due to incomplete operation; in other words all other operations except Neumann's will be followed by more or less disturbance of equilibrium and by tinnitus—such as happened to me years ago! With more definite pathologic findings we are accorded the privilege of changing our conclusions in regard to various operations.

DR. G. E. SHAMBAUGH, Chicago: Several points have been brought up in this symposium which I should like to emphasize. In the first place, we must keep in mind that in suppurative otitis media a number of different types of internal ear complications may occur, all of which give rise to distinct labyrinth symptoms such as vertigo, nystagmus, tinnitus and deafness. It is important that we make a correct diagnosis of the type of complication in a particular case because the treatment is different for the several complications. In some of these complications giving rise to labyrinth symptoms, a simple mastoid operation is indicated; in others, the labyrinth itself should be opened up, and in still others nothing beyond the treatment of the otitis media by the ordinary measures is called for. Most important is it that we differentiate between cases of diffuse suppuration of the labyrinth and cases of labyrinth fistula, or the so-called circumscribed labyrinthitis, be-

cause in the latter we do not open the labyrinth, whereas the opening of the labyrinth may be called for in the diffuse suppuration. The diagnosis between diffuse suppuration of the labyrinth and diffuse serous labyrinthitis is also important because it is not advisable to open the labyrinth in cases of serous involvement. We should never open the labyrinth when there is any function retained in the labyrinth such as a remnant of hearing or a vestibular apparatus that can be stimulated. It is a much graver mistake to open a labyrinth when no adequate indication exists than to neglect to open it when the diagnosis would seem to indicate an operation. Many of the patients with diffuse suppuration of the labyrinth will recover spontaneously without operation, whereas to open into a labyrinth not the seat of diffuse suppuration experience has shown to be of danger to the patient. It is not possible to interpret intelligently the various symptoms arising from the several complications of the labyrinth without a clear understanding of the physiology of the inner ear and without a clear idea of the pathology of these complications.

I cannot agree with Dr. Welty that the disturbances that occur after operation on the labyrinth occur because it has not been entirely destroyed. The function should be destroyed before we operate. If symptoms of labyrinth irritation occur after operation it means that we have operated when we should not have done so, because there was still function there.

In my experience I have not yet observed the condition which Professor Mygind points out, in which there is apparently after a radical operation a destruction of the labyrinthine function, without our being able to recognize it from the symptoms. He said we might recognize it perhaps weeks or months afterward. That it is possible for a patient to have a rapid destruction of the labyrinth without symptoms I have not observed. It would seem to me that such a case might be explained by the fact that before operation we did not go through the complete tests. There might have been destruction of the labyrinth without the patient being aware of it dating back perhaps many years.

DR. ROBERT BARCLAY, St. Louis: Whatever the condition of the ear—whether or not there be suppuration of the middle ear, with or without extension to the labyrinth—vertigo may arise from, and should be attributed to, another source. My attention was directed to this when the cause of vertigo was being discussed; and that it might be borne in mind in every case I thought it well to speak of the influence of the inferior cervical ganglion. From that ganglion arise not only the inferior cardiac nerve but also vasomotor fibers that control the contraction and dilatation of the vertebral artery, of which the labyrinthine artery is a branch, and from which alone the arterial supply of the labyrinth is drawn. The effect of tobacco, acute tobacco intoxication—especially in enfeebled persons or in young persons beginning to smoke—largely affects this very nerve center, the inferior cervical ganglion and its arterial and nervous distribution. Such an attack resembles the pure labyrinthine inflammatory invasion very closely; and I wish to call attention to it and emphasize the necessity for considering this possibility in all cases of vertigo.

DR. C. M. BROWN, Buffalo: I agree with Dr. Shambaugh that it is not wise to operate on the labyrinth so long as we have any function left there. The greatest problem is when to operate and when not. We are all doing mastoid work and I believe that it is not right to do it without first making an examination to find out if the semicircular canals and cochlea are functionating. We can all examine the internal ear. The caloric test is always at hand and should be used in every acute as well as in every chronic case of mastoiditis in which we are going to operate. It is a well-established fact that in syringing an ear with cold water one gets nystagmus to the opposite side if the labyrinth is functionating. Every patient can be so examined in order to ascertain if the labyrinth is functionating or not.

Recently I had a case of double otitis media in which there was a question concerning which side to operate on. Both sides were examined thoroughly; on one side the vestibular apparatus was not functionating at all—no result on turning and no result with cold water. There was chronic suppuration on both sides following scarlet fever at the age of 2. I did not operate on the side that was not functionating. If I had I should have expected meningitis, if I had not at the same time removed the internal ear.

Do not operate in a mastoid case without testing the condition of the vestibule, and if you cannot do an operation on the internal ear leave that mastoid alone which has a nonfunctionating labyrinth. If the cochlea and vestibule are destroyed it may be well to remove both. We should not quibble too much on when to operate on the internal ear, but on when to leave it alone.

DR. LOUIS K. GUGGENHEIM, St. Louis: The statement was made by Dr. Fletcher that with a diffuse suppurative labyrinthitis, say of the right side, he got a spontaneous rotatory nystagmus to the left. On syringing the left ear with cold water this nystagmus is decreased, and if syringing is continued long enough we get a rotatory nystagmus to the right (diseased) side. A vestibular nystagmus to the diseased side in a case of diffuse suppurative labyrinthitis without an intracranial complication I believe to be impossible, for the following reason: Normally the two vestibular apparatuses exert a certain equal influence over the eye-muscle nerves through the vestibular nerves, Deiter's nucleus, the fasciculus longitudinalis posterior, and the nuclei of the abducens and oculomotor, and any disturbance in the equilibrium of this influence results in nystagmus. Now in a diffuse suppurative labyrinthitis of the right side the influence normally exerted by that side is lost, the left vestibular apparatus acts alone, the result being a vestibular nystagmus to the left side. If we now syringe the left side with cold water the influence exerted by the left vestibular apparatus is temporarily lessened by the paralyzing effect of the cold water. The result is a decreased nystagmus to this side. If the syringing is continued long enough, the stimuli which normally pass from this side to the eye muscles may be entirely lost. The result will be complete cessation of nystagmus. Now, no matter how long the syringing with cold water is continued, a vestibular nystagmus to the right (diseased) side is, I believe, impossible, for the simple reason that the right vestibular apparatus is no longer functionating. In other words, with the right vestibular apparatus destroyed by the diffuse suppuration and the left vestibular apparatus temporarily paralyzed by cold water, we again have vestibular equilibrium restored. Therefore, there can be no nystagmus of the vestibular variety, as this depends on a disturbance of vestibular equilibrium for its existence.

PROF. HOLGER MYGIND, Copenhagen, Denmark: I think the difference of opinion between Dr. Welty and myself may be explained by the difference in our operations; I do the operation more radically. Dr. Welty has passed round a temporal bone on which he has made resection of the labyrinth. Now, I want to state that Dr. Welty has not opened the whole of the superior semicircular canal. That is just where the difficulty comes in. It is important to have a very small chisel and a very sharp one. To Dr. Shambaugh I would say, the reason the labyrinthine symptoms are overlooked is likely because these postoperative suppurations often come in the course of the first twenty-four hours after operation when the patient is still suffering from the effects of the anesthetic.

DR. OTTO GLOGAU, New York: A few years ago, when I was assistant to Professor Politzer in Vienna, Dr. Neumann said: "When you go to America tell them about this labyrinthine work; you will find that they do not know very much about it." A few months ago when Dr. Neumann was here he was astonished to find how much was known about it in this country. Three years ago I suggested that all cases of chronic suppuration of the middle ear be examined before radical mastoid or labyrinthine operation, as is done in Politzer's clinic, that is, by the so-called labyrinthine schema. I am in accord with Professor Mygind that we must be conservative in the radical operation, but we can only do this by following up the cases, every day making a new test and thus detecting labyrinthine symptoms at the very onset of the inner ear involvement. There is another disease which simulates lab-

yrinthitis and is caused by pressure symptoms only. A retention of pus or cholesteatoma behind a fragment, adherent to the promontory, or behind a new membrane formed in place of the destroyed tympanic membrane may cause all the symptoms of labyrinthine suppuration; these will readily disappear, however, when the primary cause is treated properly. I consider Dr. Neumann's method of operating on the labyrinth the best.

DR. J. R. FLETCHER, Chicago: The fibrous connective tissue formations in the area of the oval window aid in the production of fistulas. In relation to the matter of operation on the labyrinth, the statement has been made that it is not difficult; my experience has been mainly on cadavers, and I opened the facial canal in many of them. I have made no report of operations on the living. Every test that is mentioned in this paper I have repeatedly confirmed, and I believe that I have not deceived myself. I think they are correct.

DR. G. E. DAVIS, New York: I do not know whether I understood Dr. Duel or not in regard to the loss of orientation with the destruction of one ear. I tried to make it clear in my paper that the ear serves the purpose of audition, orientation and equilibration. I also mentioned two other sets of accessory sense organs, the eyes and the muscles. It goes without saying that with the loss of one ear a man may have orientation and equilibration just as when one eye is lost he may have vision. With the loss of one set of these sense organs the other two sets in a short period will enable the individual to re-establish these functions. Orientation is the recognition of our position in space and equilibration is simply the faculty of assuming and maintaining position in space. With the loss of one ear, if a man can stand, he appreciates that he is standing, and if he reclines he appreciates that he is reclining, and that is the function of orientation. Maintaining that is equilibration. Now with the loss not only of one ear, but the visual organs also, a man soon learns to appreciate his position in space and to maintain it.

Dr. Shambaugh has, I think, fully answered Dr. Welty as to the destruction of the labyrinth. I wish to answer another point of Dr. Welty's in regard to his statement that the caloric test was negative after either the cochlea or semicircular canal system is out of commission. Now, if the cochlea is out of commission and the semicircular canals are in commission and the caloric test be made, a reaction is manifested by nystagmus, with nausea and vomiting, showing that the semicircular canals are still functionating.

FOIBLES IN SPECIALISM*

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FORT MADISON, IA.

One of the easiest tasks is to find fault with existing things, whether they be right or wrong. There is but one other thing as easy, and that is to go wrong, as nearly all the nations of the earth were tempted to depart from the paths of right, and thus prepare the way for their enemies to encompass their destruction. Even after a short season of right-doing the Israelites, as soon as Moses was out of their sight up the mountain, made them a golden calf and worshiped it. They were not the only ones who did this. Some of the most powerful nations of the earth, drunken with the wine of material success, became unmindful of their morals, and departing from the virtues of the fathers, indulged in riotous living, became vain and arrogant, and thus soon went to their destruction. As with nations, so with individuals. Their foibles are their ruin.

Thus it might fare with the foibles of specialism. Not that specialism is not a good thing; on the contrary, it is indispensable. The realms of knowledge are so large that it is no longer possible to follow the teachings of a Chesterfield: "to be a gentleman it is necessary to know a little of everything, and know all about some things." Science asks too much of us now to follow the above teaching. This is the era of specialism, and we must be content with a choice of careers. Medicine is but a branch of the natural sciences, namely, biology, and we are not able to learn all even of this one branch. We have found it needful to study more particularly some of the parts of medicine in order to do justice to our patients' needs. This leads us to medical specialism.

May I suggest that, if we could eliminate all pseudoscience, or else if we could establish a censorship of that part of our literature which masquerades as scientific, many of our burdens would be lightened and much of our precious time would be saved. Our library shelves groan under the weight of verbosity, prolixity, tautology, and literary dust, straw and chaff. This pseudo-science has begotten pseudo-specialism and specialism gone mad.

This paper is not to be construed as the usual diatribe of a generalist against specialism, as I am an admirer of true specialism, for I recognize it as an absolute necessity; but it is a warning against the foibles of the pretender and some of the better ones even, whose zeal has exceeded their discretion. The earnest and true scientific specialist also, at times, succumbs to the foibles of his class, which is an easy thing to do when off guard. For instance, it is very easy to fancy that all affections of man must fall under this or that particular branch of practice, so that, one might think, the other specialities do not amount to much. For example, I recently heard a man, who fancies he is a major surgeon and who does some creditable surgery, stigmatize some other men as finger-and-toe surgeons. You know, of course, what he meant to express, though there is some surgery about the fingers and toes that may tax the skill of the best of surgeons.

There are those in our own Section on Diseases of Children who act as if all there was to pediatrics was the artificial feeding of infants—as if all babies were fed out of bottles! Those inclined to mathematics want to reduce infant-feeding to algebraic or logarithmic formulas, the results of which, of course, agree with some children, the same as almost anything else would agree with them. Others, in writing of the management of the infant, would make us infer that all the babies they treat are the children of millionaires. They describe the duties of the first nurse, those of the second nurse, then that of the nursery maid. They then tell us when the child should spend its time in the nursery, when in the solarium, and when in the tent on the housetop, when it should have a ride in the grounds, when in Central Park, and when it should take a sea voyage. This makes us heave a sigh and exclaim "lucky dog."

I really think that the specialist spoke from his usual habit and daily practice; only he forgot that there were some mothers who do not have two nurses, no solarium except the back porch of the flat, no sea, except the mud puddle in the alley, no housetop where the little sufferer with pneumonia may be put in a tent, and no tent. The moral is obvious. It may not be amiss to say that in the rural districts most children are fed on the moth-

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910

er's breast, and the artificially fed babies are given cow's milk, often augmented with cream, and they thrive. I do not mean by this that the rules for artificial feeding should be disregarded; but they receive too much emphasis on the floors of pediatric societies. What the majority of mothers need is such directions as they can follow and practically carry out in their homes, according to the dictates of common sense, and not according to the vaporings of a specialist of the ethereal cult, which, be they ever so valuable for the clinical laboratory of a multimillion-endowed hospital, are not within reach of the average mother's ability to execute.

Another foible is the idea that it is always necessary to give the history of the affection under discussion, its bibliography, pathology, etiology and antiseptic technic, how to wash the hands, etc., until the few grains of truth the author wishes to present are so mixed with chaff, straw, dust and debris that, what would have been a modest book or paper, becomes a bulky mass that is scarcely worth while to peruse for the worth it may contain.

The history of disease, if worth the reading, can be found in special books; we also have works on antisepsis, pathology, etiology and the other trimmings, so that it is not only unnecessary to mention these things in every paper or book, but also a clumsy method of exhibiting one's exaggerated ego at the frightful expense of the money, time and bookshelves of the unfortunate reader.

Another foible of which the specialist should beware is considering the attendant who calls him an ignoramus. The consultant rightfully is supposed to have special knowledge in the case, else he would not have been called. But this does not by any means make the attendant an inferior man. The general internist is often the better man of the two, and, if the specialist were to measure up with the internist, he would find himself very often the smaller man. In his specialty he is assumed to be the better man, but that should not cause him to put on airs, become pompous, or otherwise conduct himself so as to disparage the attendant. Though some may question if this is ever done, it is almost as much the rule as the exception. Then the attendant gets tired, and softly swears to himself, "Never again."

Another foible very common and damaging to specialism is the too close application to specialism. It is almost as impossible to be a specialist without keeping informed in the cognate branches, as it is to keep well informed in the whole field of medicine. Yet a certain amount of general information must be kept up in order to be a specialist of the broad school, so as to be comprehensive, not narrow, as it is easier for a man to have a larger horizon from the top of a hill than from the bottom of a well. Now we all concede that specialism, as exhibited in the Section on Diseases of Children, is for the good of mankind, including the members of the Section, and that only the highest motives impel all of us to contribute what we do. Yet, lest we forget, I sound this note of warning to all who specialize, that things too highly specialized may exceed their sphere of usefulness, and become merely ornamental and ideal from an academic point of view, rather than useful and practical.

The physician must, in the larger number of cases, entrust his directions not to trained nurses, but to mothers of varying grades of intelligence, and hence he must learn to give such instructions as any particular mother may be able to execute, so as to obtain the greatest good to her child. These instructions are simple when compared with those issued to a staff of nurses in one of our teaching hospitals, equipped with a clinical laboratory, yet it requires no great stretch of the imagination to see that the one may lead to better results when issued to a mother of average intelligence than the other. Here is where that peculiarly indefinable quality of the mind, called "common sense," makes itself especially felt. Not that I want to establish it on a throne above science, but I would place it on a level in conjunction with experience, one on the right, the other on the left of science, so as to make that glorious trinity the ally of the physician, which makes for success in the treatment of disease and puts to flight the bizarre and finicky vaporings of the evanescent etherealist.

No word has been more abused than the word "practical," unless it is the other word "specialist." When taken together in their larger sense they are scarcely susceptible of abuse, and for this I make a plea. And whether we prescribe for a sick baby, or write a book on the subject, let us not make it encyclopedic with the accumulated dust of the ages, but rather let us follow the authors of mathematical works, who do not insert the multiplication table into every book, but let it suffice to appear in one of the primary books of the series. For instance, the bacteriology of one part of the body is very similar to any other part; hence the antisepsis or asepsis of one is similar to that of any other part; so there is no need to mention these and their tedious details in everything medical that is read and published. The author's learning will be in evidence without these tiresome details, and our time may be spent more profitably in reading rather than hunting for the little new and instructive matter we seek and need. Of course, publishers must live, but they should serve us and not we them. I have a few small monographs in my library, less than half the size of the ponderous volumes we are now offered, that contain more solid meat than many a book three times their size. Then there is a system of four volumes with a ponderous 1100-page supplement two years later, which are so stuffed and padded with the history, bacteriology, case histories, aseptic technic, prescriptions, pharmacology, quotations from obsolete authors, parallel opinions from more modern authors, hazardous opinions not yet proved, long bibliographies, and doubtful statistics, that it takes endless time to find anything if it is wanted ever so much. These things are really not foibles but crimes, and should be punished, if it were possible.

My excuse for reading this paper in this Section is not its special fitness for the Section on Diseases of Children, but the fact that we have no section especially appropriate for the reading of such a paper unless it be appropriate for any section. We must read, not scientific papers only, but papers on anything that may be of benefit to the medical profession. The two divisions of the American Medical Association into legislative and scientific do not nearly cover the legitimate field of our activities. We should have a time and place in general session where such things as medical economics could be taken up and briefly discussed. I trust as we progress we may grow broader, and then we shall have fewer foibles in specialism as well as in all things medical.

1007 Fifth Street.

A CASE OF COLLOID CARCINOMA OF THE SKIN

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I report this case, first, because of its rare occurrence, as I am unable to find a similar condition reported in literature, and secondly because it emphasizes the importance of laboratory work in cases of obscure diagnosis.

History.—Miss C. G., unmarried, aged 35, a clerk, entered my service at the Cook County Hospital, June 8, 1910. She had always lived in Chicago and was apparently of good habits. Menstruation began at 14 years, was regular and of the twenty-eight-day type.

Present Illness.—The patient stated that two weeks before entering the hospital a blister appeared on the lower third of the right leg and that after a few days it opened, and an ulcer followed, for which she sought treatment. She denied having injured the leg or having applied any drug locally. With the exception of the ulcer she said she was in good health.

Past History.—She was well up to the present illness, except that her legs occasionally swelled, which condition a physician told her was due to nephritis. She had diseases of childhood and malaria ten years ago, but denied typhoid and all venereal infections. Family history was negative, except that the patient's mother died of heart disease.

Examination.—The patient was an obese white woman, quite nervous, but apparently having no pain; no cyanosis or icterus. The pupils were equal, reacted to light and accommodation; the mouth was negative, except for a few decayed teeth; there was no thyroid enlargement. The lungs were negative. The heart showed no enlargement; tones strong, regular, no murmurs. There were no ascites, no abdominal masses, no tenderness on palpation. The liver was not enlarged; the spleen not palpable. The lower half of the right leg was edematous. About 2 inches above the ankle was a superficial, irregularly shaped ulcer about 2 inches in diameter. The parts surrounding the ulcer were inflamed and tender. The femoral glands of the right leg were moderately enlarged; there was a slight varicosity of veins of both legs; pulsation of posterior tibial and dorsalis pedis was less marked on the right than on the left leg. The uterus was in good position and not tender; there were no masses or tenderness in pelvis. Knee-jerks were present; Romberg and Babinski absent. The urine was clear, amber, specific gravity 1020, acid, no albumin, sugar, casts, leukocytes or red-cells. Blood examination showed 15,000 leukocytes; no malarial parasites.

Course of the Disease.—On first examination I thought the condition was a dermatitis with infection and ulceration, and accordingly applied hot dressings, which failed to alleviate the symptoms. During the first three weeks in the hospital the patient ran an irregular temperature, ranging from 99 to 101 F., with no special evening rise. The ulcer gradually extended until it involved the entire anterior third of the leg and laid bare the tibia. It was very foul and sloughing. On the ninth day after admittance a bluish discoloration of the toes appeared which gradually increased in intensity and extension until there was a well demarcated gangrene of the entire foot and lower third of the leg on the twenty-second day. The leg was then amputated just below the knee. During the patient's entire stay in the hospital she had a severe diarrhea of greenish, liquid stools, containing small amounts of blood, but no parasites, and also continually lost weight. After the operation the patient grew steadily worse, the diarrhea becoming uncontrollable and the emaciation being very rapid. Three weeks after the operation she became irrational and very weak, and three days later, on the forty-sixth day after admittance, died. I was uncertain as to the cause of death and as no post-mortem examination was permitted I made the tentative diagnosis of tuberculous enteritis.

Pathologic Finding.—At the time of amputation I excised a piece of the involved tissue for examination, which the hospital pathologist diagnosed as colloid carcinoma.

As colloid carcinomas occur most frequently in the intestines it is most probable that the patient had a colloid carcinoma of the intestines with a secondary growth in the skin.

THE PATHOLOGY OF JOINT TUBERCULOSIS: TUBERCULOUS SINUSES

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In numerous articles in the past I have called attention to the importance of avoiding secondary infection of the walls of tuberculous sinuses and abscesses by the germs of suppuration, and have pointed out the danger the patient incurs if this secondary infection take place. In this I have followed the teachings of others and my own experience, an experience gathered in treating many cases of joint tuberculosis. On the other hand, the custom of opening, scraping and packing tuberculous abscesses is still widespread, and those who practice it do so either from ignorance or because their experience teaches them that it is correct. Now, the experience of one man may be said to be as good as that of another, and until we can bring proof to sustain us we shall hardly convince our opponents. A very suggestive case of tarsal tuberculosis has recently furnished us with additional evidence of the truth of our contentions, and I shall quote it at length. Before doing so, however, I wish to call attention to one or two points in the pathology of joint tuberculosis.

Pure tuberculosis does not, possibly with very rare exceptions, attack ordinary connective tissues of low grade of organization. They must contain some peculiar cellular elements in addition.

The red or cellular marrow of bone and the cellular synovial membrane, tendon sheaths, lymph nodes, epithelial structures, etc., are vulnerable; but cartilage, ligaments, fatty or yellow marrow, fibrous connective tissue, etc., escape direct infection. If, however, a secondary infection by pus germs be added, tissues that were immune before, now are open to attack.[1] An ordinary tuberculous abscess, starting from a focus in a bone, making its way toward the surface along the fascial planes, travels along a path of ordinary fibrous tissue which is not open to attack. So long as these abscesses remain uninfected the patient does not suffer from constitutional involvement nor from other symptoms except possibly those due to pressure. If a secondary infection be added the entire picture is changed, and forthwith the constitutional symptoms of pain, fever, etc., become prominent, the danger to the patient is greatly increased and his chances for recovery are seriously impaired.

What is the reason for this? Why are these tracts once infected so difficult to heal? No matter how vigorous our method of drainage, their course is never that of a simple infected abscess. They may exist for years. One reason is that the secondary infection has changed what was a small localized tuberculous focus into a widespread tuberculous area, and has added a mixed infection. In an old tuberculous sinus tubercles may be seen under the microscope deep in the walls, inaccessible to any curette, but in an uninfected sinus no tuberculosis is present. In other words, the walls of an uninfected

1. Ely: Surg., Gynec., and Obst., July, 1910.

tuberculous sinus are not tuberculous; the walls of an infected tuberculous sinus are tuberculous. By permitting infection of a sinus with pus germs we are at the same time infecting it with tuberculosis. This fact, though not new, is not generally known. The following case illustrates it:

The patient was a man of forty-four years, a driver. He had suffered from pain and disability of his right foot for twenty months, and these symptoms had increased to such an extent that he was compelled to go about on crutches. He had been treated with plaster of Paris and strapping, and had never had any open sinuses. Examination showed moderate swelling over the dorsum of the foot, and considerable sensitiveness to pressure. The foot was in eversion. The lungs were involved. The evidences of the disease were so small that the wisdom of an amputation was doubted, but, acting on the theory that tarsal tuberculosis in the adult seldom if ever is cured without an amputation, and especially in view of the patient's pulmonary disease, this operation was decided on and was performed at the Roosevelt Hospital. During the performance of a Syme's amputation, the knife of the operator cut through a sinus on the dorsum of the foot, leading upward, but not communicating with the surface. From this sinus pus oozed.

By courtesy of the house staff I secured the specimen. On dissection it was found that the comparatively mild symptoms were caused by an extensive tarsal tuberculosis which had involved two of the tarsal joint cavities with their ramifications, and the talus, navicular and cuneiform bones. The cartilages were roughened, mottled and eroded at their periphery. The synovial membrane was thickened and inflamed, and showed under the microscope typical tuberculosis, but the walls of the sinus from this tuberculous lesion showed, not tuberculosis, but the ordinary evidences of inflammation—round cells, polymorphonuclears, edema, arterial thickening, dilated capillaries, etc.

If one will picture to himself this extensive bone tuberculosis penetrating the bones of the tarsus, covered up as it is by ligaments running in every direction, with numerous tendons passing over these, and with blood vessels and nerves added, he will appreciate the utter absurdity of an attempt by a partial operation to eradicate under all these a disease of whose extent he cannot possibly have any idea. Any other operation than an amputation would have been worse than useless.

440 Humboldt Street.

Special Article

TYPHOID FEVER IN DETROIT

BY THE SPECIAL COMMISSIONER OF THE JOURNAL

The reports of the municipal board of health show that in certain years typhoid fever has prevailed in Detroit to an extent that must be called excessive. The death-rates from this disease for 1887, 1888, 1892, 1893 and 1907 are so high that they might well have been the occasion for grave concern to the inhabitants of any modern civilized city. The facts are set forth in Tables 1, 2 and 3.

NATURE OF THE AVAILABLE STATISTICS

Other than these bare records of deaths, there is little to throw light on the extent, distribution and age incidence of typhoid fever in Detroit. The first report of the health department was published in 1882; so late as 1894 we find 83 deaths recorded under the head of "febris," and in a footnote these are said to include: "febris intermittens 8, perniciosa 1, puerperalis (!) 10, remittens 4, typhoides 64, typho-malaria 6;" it was not till 1904 that typhoid fever was added to the list of diseases that must be reported to the health officer. Even now it is plain that only a small proportion of the typhoid fever cases are regularly reported to the authorities. In 1905-6, 70 deaths and only 87 cases were reported. It may be recorded in passing that the system of recording vital statistics on the basis of the fiscal year (July 1-July 1) rather than the calendar year does not facilitate comparison with conditions in other cities.

It must not be supposed that Detroit is peculiar in most of the practices above mentioned. Until recently few American cities have had a satisfactory system of nomenclature, and certainly very few have at the present time any adequate record of typhoid fever cases. Detroit can hardly be said to be much different in this respect from the average American city of its class.

An exception must here be noted to the aforesaid meagerness of record. One particularly severe outbreak of typhoid fever—in 1892—was made the object of special investigation by a competent observer,[1] and his conclusions were published in a supplement to the annual report of the Michigan State Board of Health, 1898.

TABLE 1.—TYPHOID DEATH-RATES, DETROIT, 1886-1909

Year.	Population.*	No. Deaths.†	Deaths per 100,000 pop.‡
1886	170,061	67	39.4
1887	179,015	116	64.9
1888	187,986	86	45.9
1889	196,922	60	30.5
1890	205,876	39	19.0
1891	213,859	73	34.1
1892	221,842	208	93.8
1893	229,825	97	42.2
1894	237,808	67	28.2
1895	245,790	61	24.2
1896	253,773	57	22.5
1897	261,756	38	14.5
1898	269,739	58	21.5
1899	277,722	35	12.6
1900	285,704	50	17.5
1901	303,710	58	19.1
1902	321,716	60	18.6
1903	339,722	53	15.6
1904	357,728	58	16.2
1905	375,735	63	16.7
1906	393,741	80	20.3
1907	411,747	100	24.3
1908	429,753	87	20.2
1909	447,759	94	21.0

* Population of 1880, 1890, 1900, 1910, U. S. Census. Intervening years calculated by "arithmetical" method (Twelfth Census Bull., No. 135).

† Number of typhoid deaths recorded in reports of health department.

‡ Rates computed directly from populations and typhoid deaths given in this paper.

TABLE 2.—AVERAGE TYPHOID DEATH-RATES BY FIVE-YEAR PERIODS

1886-9	45.2	1900-4	17.4
1890-4	43.5	1905-9	20.5
1895-9	19.1		

THE CAUSE OF THE 1892 OUTBREAK

The extensive epidemic of the summer of 1892 carried the typhoid death-rate for that year to the highest figure known in the sanitary history of the city (93.8) and is one of the severest recorded in any American city during the last twenty-five years. Professor Williams' careful study of the distribution of the deaths and the age of the decedents, together with other data, led him to the belief that nothing but the public water-supply could be the general vehicle of infection. All the facts obtainable at the time pointed to this conclusion, and it is indeed difficult to explain so explosive an epidemic and one of such magnitude in any other way. The discussion that followed the reading of Professor Williams' paper in the sanitary convention at Detroit in December, 1897,

1. Gardner S. Williams, at the time civil engineer to the Board of Water Commissioners of Detroit.

showed that leading sanitarians were ready to accept the explanation of a water-borne origin.

The source of the unusually heavy water infection responsible for the epidemic of 1892 was made the object of special investigation in the study just cited. The conclusion was reached that the excessive numbers of typhoid bacilli in the Detroit water at that time had come from the sewers at Port Huron, the only city on the American watershed having a system of sewerage. Computations made from the best available data indicated that not more than twelve or less than six days would probably be required for the water to flow from Port Huron to Detroit. A fact thought to be of special significance was the circumstance that extensive dredging operations in the channel of the Black River, the small stream into which all the sewers of Port Huron emptied, had been conducted by the United States government in the spring of 1892 and, therefore, just prior to the outbreak in Detroit. The material excavated was loaded on scows and dumped in St. Clair River about a mile below Port Huron. It is supposed that the sewage deposit thus added to the water of the St. Clair contained typhoid bacilli which found their way in from

TABLE 3.—DEATHS BY MONTHS FROM TYPHOID, 1889-1909

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1889	5	4	3	1	6	3	5	7	8	9	11	0	60
1890	3	1	3	1	0	3	4	8	7	3	3	3	39
1891	2	2	0	2	6	3	1	4	19	15	16	3	73
1892	7	4	12	11	6	38	22	30	26	27	16	9	208
1893	4	3	8	10	6	3	7	12	14	14	11	5	97
1894	6	3	7	6	4	3	6	6	8	7	7	4	67
1895	3	1	1	4	4	3	3	8	9	11	11	3	61
1896	4	5	5	7	4	2	2	5	11	5	1	6	57
1897	1	0	0	1	0	1	3	10	16	5	7	4	38
1898	3	4	1	1	2	2	8	9	13	9	4	2	58
1899	6	0	1	0	1	2	3	3	3	10	4	2	35
1900	5	4	5	3	4	6	2	4	3	9	3	2	50
1901	4	3	6	2	4	5	2	6	6	11	5	4	58
1902	7	2	2	3	1	2	6	9	9	10	3	6	60
1903	1	2	3	3	6	2	3	8	4	6	10	5	53
1904	2	5	5	5	6	5	5	6	4	7	5	3	58
1905	2	2	4	3	1	3	5	11	10	8	6	8	63
1906	5	3	2	1	6	5	5	8	19	11	4	11	80
1907	9	5	8	6	9	5	4	7	13	14	10	10	100
1908	3	2	7	4	4	2	12	11	15	14	11	6	87
1909	6	3	3	6	4	7	8	12	21	14	5	5	97
1910	4	5	6	1	5	3	4	15	*	..	..	..	..

* Seventeen deaths reported up to September 26.

one to two weeks to the Detroit water intake. While this explanation leaves unaccounted for the large amount of typhoid fever in Detroit in March and April, 1892, and throughout the whole year 1893, the evidence in Professor Williams' paper must be studied in detail to be appreciated at its full value. It may be added that this instance of alleged long-distance water conveyance of typhoid bacilli was cited in the Chicago Drainage Canal case and was the subject of comment by witnesses on both sides of the controversy.

While it may be admitted that the precise origin of the Detroit epidemic of 1892 was not indisputably ascertained, there can be no doubt that in some way typhoid bacilli had gained access to the public water-supply in that year. There was no difference of opinion in regarding the water-supply at fault.

DESCRIPTION OF THE WATER-SUPPLY

The water-supply of Detroit is drawn from the American channel of the Detroit River at a point near the northeast corner of the island of Belle Isle (see diagram). There are three inlet pipes, one 1,000 feet and two 1,500 feet long, one 5 feet and the other two 6 feet in diameter. These run from the channel of the river to an open settling basin. The settling basin is 365 feet wide and 800 feet long, with an average capacity of about 30,000,000 gallons. The daily per capita consumption is estimated as averaging from about 160 to 180 gallons. The total amount pumped daily ranged during the year 1907-8 from about 59,000,000 to over 91,000,000 gallons, an amount equivalent to from two to three times the capacity of the settling-basin.

The character of the water-supply is tested at intervals by the city analyst and bacteriologist. The results in general appear to be satisfactory. In the report of the health board for 1907-8 we read: "The bacterial count varies from 96 per cubic centimeter to 720 per cubic centimeter, the latter count only existing for a day or so in the spring. At no time this year have colon bacilli, or other evidence of sewage contamination, been observed." No statement is made in the published reports as to quantities examined or methods employed in the attempt to detect sewage contamination.

On September 21 and 22 of the current year (1910) your commissioner examined specimens of the Detroit water-supply drawn from a tap in the business district of the city. On September 21 two 0.1 c.c. samples and two 1 c.c. samples did not show the presence of *B. coli*, but in a third 1-c.c sample two *B. coli* organisms were present. On September 22 *B. coli* was not present either in two 0.1 c.c. or in three 1 c.c. samples examined. Litmus lactose agar was used as the isolating culture medium and the nature of the red colonies verified by sub-cultures. Four 1 c.c. samples taken direct from the settling-basin showed the presence of *B. coli* in one case.

These bacterial examinations do not afford any marked evidence of contamination at the time the samples were collected. On the other hand, their generally negative character does not necessarily imply that the water is at all times and under all conditions safe. A dangerous infection of such a water-supply as that of Detroit might exist for a day, or even a few hours, and remain undetected unless examination of the water was searching and frequent. It is noted above that in one sample of tap-water colon bacilli were demonstrably present.

A MENACE TO DETROIT'S WATER-SUPPLY

Reference to the topographical diagram shows a small stream known as Connor's Creek, which empties into the Detroit River on the American side a short distance above the water intake. This stream flows through a large cemetery and receives the drainage from a part

of Fairview (estimated to contain about 400 families at the time of its annexation to Detroit, in 1907). The situation thus created seems to have been a cause of anxiety to some of the Detroit authorities for a long period. In the discussion of the 1892 epidemic, already referred to, it is stated that as a rule the water of Connor's Creek does not mix sufficiently with the main current of the river to reach the intakes, but flows past nearer shore.[2] Even if this is the case, however, there is certainly danger from this source when an intake pipe nearer shore is used, as seems sometimes to be the case.[3] There is some evidence, furthermore, that the water at the main intake crib may be affected. One observer[4] is on record as follows: "When there is a flood in Connor's Creek basin the foul waters of the creek can be readily seen all the way from its mouth in the river to the opening of the city sewers. It is not unusual after heavy rainfalls and consequent floods of the creek basin to find the city water as drawn from the house faucets contaminated with quantities of organic matter."

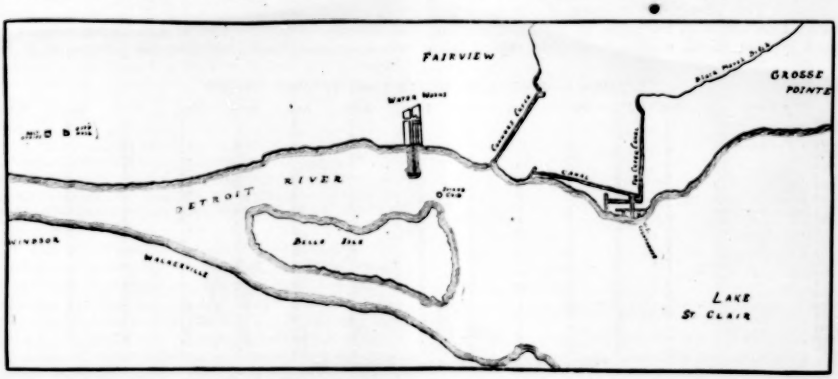

Diagram of Detroit to show the relation of water-supply and possible sources of contamination.

A recent visit to Connor's Creek by your commissioner shows that the stream at the present time is heavily laden with sewage. A hundred yards south of Jefferson Street, near the large manufacturing establishment of the Chalmers Motor Company, the conditions are substantially those of an open sewer. Grease and paper float on the surface and the bubbles of gas which are rising to the surface testify to the active decomposition of organic matter taking place on the bed of the stream. The current is in most places exceedingly sluggish, but rapid flushing out may occur after heavy rains. An examination of the water of Connor's Creek at its mouth was made by your commissioner, and showed respectively 12 and 14 organisms of the *B. coli* group in each of two 0.1 c.c. samples. Immediately below the mouth of the creek on Detroit River are several large ice-houses.

The recent growth of population in the vicinity of Connor's Creek naturally increases the danger of specific infection entering the water. The gravity of the situation has been clearly recognized by the present health officer of Detroit, Dr. Guy L. Kiefer. In the 1906-7 report the statement occurs that Detroit is "reaching a death-rate which will soon cast suspicion on our water-supply." In the same report an appropriation is urged "sufficient to carry the sewage of Fairview to a point in the river beyond the intake of Detroit's water-supply. This precaution is the least we can take . . . " Similar statements and recommendations are made in the 1908 report, and filtration of the public supply is again earnestly advocated.

THE PRESENT SITUATION

During the current year, particularly in the latter part of August and in early September, typhoid fever was said to be excessively prevalent in Detroit. It was estimated at one time (see Detroit daily papers of Aug. 30, 1910) that 900 cases of the disease existed in the city, and much concern was expressed over the outlook. An appeal for a more complete notification of cases was at that time issued, and as a result 240 cases were reported to the board of health up to September 10. Thus far the death-rate has not shown any striking increase over the figures for 1909 or 1908. At the present writing (end of September) there is little reason for believing that typhoid fever cases are relatively much more numerous than at this season for four or five years past.

All this does not mean that typhoid fever has not been and is not unduly high in the City of Detroit. While the rates for 1906-9 are not perhaps alarmingly high (Table 1), they are by no means so low that they can be contemplated with equanimity by any Detroit resident. In 1909, for example, there were 94 deaths from typhoid fever in Detroit, as compared with 45 in Cincinnati, a city that has recently purified its water-supply, or a rate of 21 compared with Cincinnati's rate of about 12.

Perhaps the most disquieting feature of the typhoid fever situation in Detroit is the failure of the disease to diminish in recent years or, to speak more correctly, its tendency to increase. In the face of a steadily lowering typhoid death-rate throughout the country generally, Detroit has shown an actual and substantial increase in the last five years as compared with the two preceding quinquennial periods (Table 2).

2. Williams, G. S.: Ann. Rep. Michigan State Board of Health, Supplement, p. 106.
3. See Detroit Times, Aug. 17, 1910.
4. Wyman, H. C.: In discussion of Williams' paper: Ann. Rep. Michigan State Board of Health, Supplement, p. 109.

As to the causes of typhoid fever in Detroit there seems every reason to consider the public water-supply responsible for some of the cases.

1. The general typhoid death-rate for the city is higher than would reasonably be expected in a city situated as is Detroit, but with a pure water-supply.

2. The typhoid rate in the city has risen in recent years, corresponding with the growth of population in the environs of the city, and the consequent increased pollution entering directly above the water intake. This increase in typhoid fever has occurred during a period when the disease has been decreasing in the country at large.

3. The deaths from typhoid fever tabulated by months (Table 3) show not only the general autumnal increase, but also seasonal irregularities which indicate water-borne infection. Such, for example, are the relatively large number of deaths in March and April, 1892 and 1893, in December, 1906, and January, 1907, in May, 1907, and in July, 1908. In 1904 almost as many deaths were recorded in the first half of the year (28) as in the second half (30).

4. The annual death-rates show marked fluctuations, far greater than would be expected in a city of this size if the water-supply were not exposed to irregular pollution. Instances are the rate of 19 in 1890, followed two years later by a rate of 93, and the rate of 21 in 1898, followed the next year by a rate of 12. Such fluctuations betoken varying degrees of pollution of the water-supply.

5. One extensive epidemic of typhoid fever in Detroit (1892) has been definitely traced to the public water-supply. The source of supply is now no better protected against occasional contamination than it was 18 years ago; as a matter of fact, the danger from near-by infection (Connor's Creek) is considerably greater.

6. The character of the watershed, with its considerable population draining into Lake St. Clair, the fact that large boats sometimes pass close to the intake crib, the existence of a small stream which discharges raw sewage a few hundred yards from the intake demonstrate the possibility of occasional water infection.

7. As could be anticipated from the environmental examination, the water-supply gives occasional bacterial evidences of contamination. If the analyst of the health board is correctly quoted,[5] considerable variation occurs: "some days the water will be very poor, but on the next day following it improves."

It is obviously impossible to discover just what proportion of the typhoid fever cases in Detroit are due to water, to the milk supply (which, judging from the investigations of the health board, is now in bad condition), to contact or to other factors, without an intensive study of the situation such as that carried out in Washington and Pittsburg. There seems to be urgent need for such a study. A fuller notification of cases is a necessary preliminary to this inquiry and should be instituted at once. In the meantime the alleged use of an old intake pipe near the shore should be investigated. The Connor's Creek nuisance can hardly be done away with immediately, but some action looking to the speedy removal of this sword of Damocles would seem to be worth while. If the present conditions are allowed to govern Detroit's water-supply a much more serious outbreak of typhoid fever than that occurring this autumn is simply a question of time.

5. Detroit Free Press, Aug. 26.

Therapeutics

EPILEPSY

Epilepsy shares with tuberculosis the distinction of being a common chronic disease which has received an unusual amount of study and investigation during the last decade or two. But, in spite of all that has been done, our practical knowledge of the disease is not much greater than it was fifty years ago. It is true that in connection with the phenomenal expansion of modern operative surgery, and of brain surgery in particular, some convulsive conditions, commonly designated as Jacksonian epilepsy, have become amenable to operative treatment. These cases, however, although commonly included in the category of epilepsy, might not unfairly be excluded from such a classification, as their phenomena, in spite of striking superficial resemblances, are considerably different from the usual cases of epilepsy, and their pathologic lesions differ in their gross characteristics from the almost speculative pathology of real epilepsy.

The most important thing which the modern study of epilepsy has taught is that some patients who have convulsive attacks may be cured by operative treatment, and to that end that it is obligatory to study every detail of the past history and present condition of each patient to decide whether he may be included in this operative class. Also, we are now able to class as epileptic (or at least to recognize the close resemblance to epilepsy) many patients who do not exhibit convulsive seizures at all.

This subject has been very carefully and exhaustively elucidated in the "Morison Lecture" on epilepsy, delivered before the Royal College of Physicians of Edinburgh by Dr. William Turner, physician of the King's College Hospital and of the National Hospital for the Paralyzed and Epileptic, London (*British Medical Journal*, March 26, April 2 and 9, 1910).

Turner divides the cases commonly called epilepsy into four classes:

First: The organic epilepsies, including (*a*) those due to "traumatic lesions of the skull, brain or membranes; (*b*) those associated with or sequential to focal organic disease of the brain, such as tumors or thrombosis."

Second: The early epilepsies, those of infancy and early childhood, characterized by "the marked degree of mental impairment, amounting to imbecility or even idiocy, found in most cases." Many of them are caused by "focal lesions, encephalitis, hemorrhage and thrombosis."

Third: The late epilepsies, including (*a*) "the epilepsy associated with degenerative cardiovascular disease;" (*b*) "the intoxication epilepsies, of which alcoholic epilepsy is most common;" (*c*) that occurring later in "dementing psychoses;" (*d*) that resulting from "eclamptic conditions, such as uremia and puerpural eclampsia."

Fourth: Idiopathic epilepsy. Of this condition he gives the following definition: "Idiopathic or genuine epilepsy may be defined as a chronic disease of the brain characterized by the recurrence of seizures in which interference with consciousness is an essential feature, associated either with convulsions or transient psychical phenomena, occurring usually in persons with an hereditary neuropathic endowment and eventually leading to more or less permanent mental impairment and dementia."

It is to a consideration of this idiopathic or genuine epilepsy that the three lectures are limited, and the entire third lecture is devoted to the treatment.

It is a curious circumstance that, although epilepsy is a common disease and the paroxysms usually occur not infrequently, physicians outside of institutions do not often see patients in the convulsive seizures, except in the more severe forms of the disease, distinguished as serial epilepsy and status epilepticus.

The question of what to do for a patient who is having an epileptic convulsion or fit is one which the physician must be prepared to answer without hesitation, as it certainly comes under the head of medical emergency. The most important thing to be done at once is to do such obvious things as will prevent the patient from being injured by the involuntary movements incidental to the convulsion.

This does not involve trying to limit forcibly the convulsive action by holding the limbs or trying to open the hands. Some have advised inserting a wooden plug between the jaws, so as to prevent the biting of the tongue, but this is a procedure of doubtful efficacy. It is not necessary to pour water on the patient, or into his face, or to slap or pinch him. Neither is it of advantage to give him inhalations of ammonia or nitrate of amyl, as ordinarily the convulsion soon ends. Hence it is generally unnecessary to telephone for an ambulance, as the patient can soon be taken home in a carriage.

In ordinary fits, after the convulsive action has ceased, the natural tendency of the patient to sleep should not be combatted, but he should be allowed to rest as comfortably and with as little disturbance as possible until his own inclination leads him to get up and move about. This rest undoubtedly allows the nervous system to recuperate, in at least some degree, from the serious perturbation to which it has been subjected. These suggestions are applicable to ordinary cases of epileptic fits which occur occasionally, not daily, in individuals who walk about the streets at their pleasure and are not in any sense confined or restrained.

In contrast to these must be discussed those cases in which a number of convulsive attacks occur during a short interval, distinguished as serial epilepsy, and that grave form of the disease in which the convulsive seizures follow each other at short intervals, during which, ultimately, consciousness is not regained and in which, after the convulsions cease, a condition of coma usually persists until death ensues. In this latter condition very active treatment is indicated. Turner advises larger doses of bromid, supplemented by chloral; for example, 20 grains (1.30 grams) of bromid of sodium with 10 grains (0.60 gram) of hydrated chlorid may be given every 2 or 3 hours. This is especially applicable to serial epilepsy and to the milder grades of status epilepticus. The chloral and bromid may be combined in one prescription, or two prescriptions may be written and the doses combined, as desired, as:

℞	Gm. or c.c.		
Chlorali hydrati	5		3iss
Sodii bromidi	10		3iii
Elixiris aromatici	50	or	fl.3ii
Aquæ ad.	100		ad. fl.3iv

M. et Sig.: As the physician directs.

[Each teaspoonful of the above, i. e., 5 c.c., represents 0.50 gram (7½ grains) of bromid and 0.25 gram (4 grains) of chloral.]

Or, if ordered separately:

℞	Gm. or c.c.		
Chlorali hydrati	10		3iii
Tincturæ cardamomi comp.	50	or	fl.3ii
Aquæ ad.	100		ad. fl.3iv

M. et Sig.: As directed.

[Each teaspoonful, i. e., 5 c.c., represents 0.50 gram (7½ grains) of chloral.]

and

℞	Gm. or c.c.		
Sodii bromidi	10		
Potassii bromidi	10		aa. 3iii
Essentiæ pepsini (N.F.)	50	or	fl.3ii
Aquæ ad.	100		ad. fl.3iv

M. et Sig.: As directed.

[Each teaspoonful, i. e., 5 c.c., represents 0.50 gram (7½ grains) each of the sodium and potassium bromid.]

In the more serious forms of status epilepticus, morphin, either in combination with the bromid and chloral or by subcutaneous injection, is sometimes useful. If, in spite of these remedies, the convulsions continue severe and frequent, inhalations of chloroform must be given and continued until complete anesthesia is produced. The convulsions will thus be held in check temporarily. Turner has seen good results from the hypodermatic injection of from 1/75 to 1/100 of a grain of hydrobromid of hyoscin. There has also been recommended (Clark, Turner) the hypodermatic injection of 10 per cent. sterile solution of bromid, repeated until 60 or 100 grains have been administered. Also "injection of the bromids by means of lumbar puncture has been advised, in sterile solutions of 30 grains to the ounce, 10 or 15 c.c. of the cerebrospinal fluid being withdrawn before 10 c.c. of the bromid solution are injected."

In high temperature Spratling (*Modern Medicine*, vii, page 670) reports great benefit from the cold bath.

After the convulsions have ceased and while the patient is lying in a comatose condition the treatment should be of a supporting character. Ammonia, alcoholic stimulants and digitalis or strophanthin should be given in order to strengthen the action of the heart. Nutrient enemas of peptonized milk may be given until the patient regains the power of swallowing, after which easily digested liquid nourishment should be given regularly at not too long intervals.

Another important question in connection with the convulsive seizure is: Can anything be done to prevent the full development of the attack when its first premonitions, the aura, are felt by the patient? In other words, can the fit be arrested? On the assumption that the convulsion is directly due to a sudden temporary disturbance of the cerebral circulation, inhalations of nitrate of amyl have been recommended. They are believed to be especially efficacious when the warnings are of cephalic character, "and particularly in those with olfactory sensations (Gowers)." To facilitate this use of the drug it is furnished in small glass globules enclosed in silk and cotton, which can be quickly broken and the vapor inhaled without delay. When the warning sensation first appears in the hand, it was long ago suggested that the wrist be encircled with a band which should be quickly tightened when the first premonition is felt. Forced extension, rubbing of the limb and biting of the finger are expedients of perhaps occasional but usually of doubtful efficiency. In patients who have visceral aura, pressure on the epigastrium, drinking cold water, swallowing a few drops of ether, inhalation of ammonia and, finally, autosuggestion—"a strong determination to overcome the attack"—are expedients which are all

believed to have been proved efficacious in individual cases.

The next questions in the management of epilepsy are: What can be done to prevent the attack? And what is the treatment of idiopathic epilepsy?

During recent years there has been a strong movement in various parts of the country toward the establishment of colonies for epileptics. For those epileptics who are also imbeciles or idiots, and who at present are confined in jails, almshouses and in hospitals for the insane, this is a most praiseworthy and useful undertaking. But when these institutions are fully established and the busy and well-meaning but not very thoughtful or well-informed practitioner recommends every epileptic he finds to be sent to an institution, and when every family which includes an epileptic who occasionally has a fit, and who consequently has difficulty in securing steady work, eagerly seizes the opportunity to rid itself of the burden of feeding and watching its unfortunate member, incalculable harm will be done.

It would be presumption to attempt to teach the officers of these institutions how to manage their patients, but those physicians who have the care of epileptics who are retained in their own homes should have the following suggestions in mind:

First, the general hygienic surroundings of the unfortunate invalids should be looked after and made as good as possible. Many are able to undertake and are benefited by some manual occupation, preferably out of doors, such as farming or gardening. This exercises the brain and helps to keep it in more normal condition, and also exercises the body and promotes those metabolic changes which are so necessary to its welfare. Physical exercise increases the elimination of all of the eliminative organs and glands, and as a result prevents the accumulation in the body of the toxic products of metabolism which are believed to have some action in predisposing to epileptic convulsions. This out-of-door work is especially adapted to patients of robust constitution. Frail, delicate patients may do well at less strenuous, in-door occupations, such as bookkeeping or drawing.

If it is impracticable for an epileptic to work he should at least take out-door exercise, and Turner recommends "walking, running, tennis, golf, croquet and football" as especially suitable, while "bicycling, rowing, swimming and riding" should be avoided.

The patient should not be left alone, but should, so far as possible, always be in the company of some member of the family, a friend or an attendant, who understands his condition and who will not be greatly disturbed if the emergency arises demanding coolness and composure.

Bathing is a most desirable adjunct to work and exercise, strengthening the habitually sluggish circulation, promoting assimilation and nutrition and increasing elimination.

The diet of the epileptic is a subject concerning which a great deal has always been said and written. In considering this question Turner points out that "in any attempt to formulate the principle which ought to guide the physician in considering the dietetic treatment there ought to be kept in mind that nervous energy has its source chiefly in the albuminous and nitrogenized principles of food stuffs." Since nervous energy seems to be in excess in epilepsy it is not strange that many observers, including Turner, have found it desirable to exclude albuminous foods from the diet of epileptics. Or, to use the more recent nomenclature, a "purin-free" dietary is advantageous in epilepsy. "A purin-free diet," writes Turner, "is made up of those foodstuffs in which the 'purin' or alloxur bodies are absent, or present only in such small quantities as to be negligible. Purin bodies exist in all forms of meat, both the white and the red, commonly used as food. They are present in large quantities in such substances as sweetbread, liver and beefsteak. They are not present in milk, eggs, bread, butter, cheese, the farinacea, most fruits and some vegetables. They exist to only a moderate degree in most forms of fish, peas, beans, lentils, tea, coffee and oatmeal."

Concerning the medicinal treatment it must be conceded that after more than fifty years of use, since its introduction by Laycock, no drug equals a bromid salt in general usefulness and efficacy. Turner's experience has been that in approximately half of the cases of epilepsy the bromids caused either arrest of the fits or a notable lessening of their frequency and severity, while in the other half they seemed to exert no influence at all. When they produce a favorable influence this is generally apparent within a comparatively short time after their administration is commenced.

Turner believes that too large doses are usually given. He finds that daily doses exceeding from 45 to 90 grains (from 3 to 6 grams) are rarely useful. The sodium salt is usually preferable to the others.

Rather recently it has been found that the bromids prove more efficacious in epilepsy if the amount of sodium chlorid in the food is reduced. Turner points out that: "Hoppe (*Neurol. Centralbl.*, 1906, p. 993) has shown that one-third of the chlorin of the blood serum has to be replaced by an equivalent amount of bromin before any therapeutic result is obtained." This diminution of sodium chlorid in the food has been found particularly useful in cases in which large doses of the bromids seemed to be necessary, and also in those instances in which the patients seemed to be especially susceptible to the toxic action of the bromid. It has been found that very much smaller doses of the bromids prove efficacious in connection with a "salt-free" or "salt-poor" diet. Turner has found that very substantial benefit has been derived from a combination of a "purin-free" diet with "salt-starvation."

It remains to consider only one final practical question. How long shall systematic administration of the bromids be continued? And it must be confessed that this question cannot be answered definitely. Some writers have advised that treatment should be continued for two years after the last fit. Others, like Turner, teach that this period, at least in some cases, is insufficient, some of his patients finding that even after years of freedom from fits, if the bromid is stopped, "a return of giddiness or of 'sensations'" indicates that there is still a liability of the more serious attacks to return. In all apparently cured patients the bromid should be discontinued only very gradually. It should never be stopped suddenly after it has been used for a long time. During the gradual withdrawal the patient should be carefully watched in order to detect, if possible, the earliest indication of a return of the fits. Finally it must be urged that for some epileptics it is wise to substitute a moderate dose of the sodium bromid for the usual amount of sodium chlorid in the food, even for many years after the occurrence of the last epileptic convulsion.

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[*For other information see second page following reading matter*]

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CULTIVATION OF THE LEPROSY BACILLUS

Although it is now nearly forty years since Hansen discovered in leprous tissues the small rods which are now universally conceded to be the cause of leprosy, yet the cultivation of this bacillus has been an unattainable goal for the bacteriologist. On a number of occasions successful results have been reported, but none of these claims has been accepted, although it has always seemed possible that in this respect injustice may have been done, since it has not hitherto been impossible to prove the identity of any suspected acid-fast bacillus as *B. lepræ* because there was no known susceptible animal on which its pathogenicity could be tested.

Two recent achievements in this problem have overcome some of the greatest obstacles, and taking advantage of them Duval[1] of New Orleans has succeeded, he believes, in securing pure cultures of the leprosy bacillus. The first of these discoveries was made by Clegg in the Philippines, who reported last year that he had succeeded in growing on artificial media an acid-fast bacillus obtained from leprous tissue, by means of inoculating this tissue on culture media already inoculated with amebas and their symbiotic bacteria. Of necessity, in this case, the supposed leprosy bacilli were not in pure culture, and there were then available only morphologic means of identifying them. The latter deficiency has been supplied by Sugai, who found that the Japanese dancing mouse was susceptible to infection with leprosy bacilli coming from human tissues, the lesions showing the histologic characteristics of the typical leprous lesion. Duval confirmed both these observations, and by means of special complex media has been able to obtain in pure culture, without the presence of either amebas or symbiotic bacteria, an organism with the morphologic and tinctorial characteristics of *B. lepræ*, which when inoculated in pure culture into the Japanese dancing mouse produced typical lesions.

It is to be hoped that the correctness of Duval's claims will soon be established by other observers, for then the door will be opened to rational prophylactic and curative treatment of this historically incurable disease.

1. Duval, C. W.: Jour. Exp. Med., 1910, xii, 649.

CAUSE AND EFFECT

There is a type of newspaper journalism which causes the thinking to grieve and the decent to shudder; it has neither conscience nor honor; it glorifies indecency and envelops immorality with sickly sentimentality and a maudlin moralizing; its advertising pages are open to anything that will go through the United States mails—and to many things that would not, if they were brought to the attention of the authorities. The habitat of such papers is confined to no locality; they are to be found in most of the large cities of this country. While what follows deals only with a California example, the subject-matter may easily fit any other of the same type.

A correspondent on the Pacific Coast recently sent to THE JOURNAL a clipping from a San Francisco paper of this kind, in which appeared the most shameless and openly worded abortion advertisements. One of these described how a "Dr. F. E. Grant" at 1293 Golden Gate Avenue was prepared to:

> "GUARANTEE to cure the longest and most obstinate female cases in 24 hours by STRICTLY up-to-date, ANTISEPTIC, SAFE and PAINLESS methods, WITHOUT DELAY from home or work."
>
> "TRAVELERS can be treated and return home the same day. We have never had a failure. Confinements and adoptions arranged."

And more of the same tenor. This, it should be remembered, was but one of many similar advertisements. These filthy, criminal and wicked notices are what this San Francisco paper serves up to its readers for the money there is in it. They constitute a *cause;* the *effect* follows:

San Francisco, within the past two weeks, has been shocked by the details of a crime which bids fair to outdo in grewsome details the Crippen tragedy. According to the reports, a young school-teacher who had loved not wisely but too well found herself pregnant and went to San Francisco to be relieved of the consequences of her indiscretion. She sees the Grant advertisement boldly offering to perform the criminal act she desires and she places herself in his hands. While on the operating table she expires and Grant, the police claim, to hide the consequences of his crime, dismembers the body, packs it in a trunk and, renting a house for a short time, buries the body (saturated with nitric acid) in the cellar. After a few months had elapsed—during which time the Grant advertisement and others similar to it continued to outrage decency—the crime is discovered and the San Francisco public is served with the details of the tragedy. Note what happens: The very paper, which by every moral law is, at least indirectly, responsible for the poor girl's death and is an accessory before the fact to the crime which has been committed, comes out with "scare heads", double-leaded type, and all the "yellow" accessories which go with this type of journalism. Page after page is devoted to the gory details of the crime—more than half a page being given to a picture of the murdered girl.

In the abortionists' column of the same issue of the paper in which these sickening particulars are printed, Dr. Grant's advertisement is missing, but the others—thirteen of them—are there. In the editorial columns, also of this issue, the editor thunders virtuously against those "who make their money by catering to depraved tastes and have no scruples against corrupting the young"!

How much longer will the American people permit the pages of the daily press to be thus prostituted and debauched? The trade of criminal abortion is vile enough at any time even when carried on in secret and hidden from the public gaze. When, however, this villainous traffic is exploited brazenly and openly through the columns of the daily press it is time for the decent element of society to take a hand, if only to protect the integrity of the social fabric itself.

THE USE OF BACTERIA TO KILL RATS

Under different names there are now offered for sale several preparations of living bacteria for the purpose of exterminating rats and mice. The bacteria in question are supposed to be highly virulent for these animals, and directions are given for spreading the infectious material about so that the animals may infect themselves and die. Aside from the question as to the effectiveness of this method of extermination—and it is still an open question—attention may be called to the fact that the method is far from being free from danger to human beings. In some cases at least the bacteria employed are paratyphoid bacilli or closely related thereto. This is the case with the so-called "ratin." According to the published statements[1] of the promoter of "ratin," the bacillus was first obtained from the urine of a child, 2½ years old, suffering with cystitis. When first isolated the bacillus had only slight virulence for rats, but mice died from feeding on material contaminated with it. On passage of the strain through rats, its virulence for these animals was increased, so that here also fatal infection would occur on feeding.

Naturally special efforts are made—at least one would think so—to maintain a high degree of virulence, but it seems that the various preparations on the market do not cause death of more than 50 or 60 per cent. among the wild rats exposed to infection. It is asserted that "ratin" has been ingested by human beings without injury. Absolute harmlessness to human beings has not been established, however, and hence special care should be taken in the use of this and other preparations of the same nature, especially because of the great danger of contamination of food substances and utensils used in the preparation of food. The following instance from recent British journals may be cited as suggestive of human infection from this rat virus:

Acute diarrhea attacked a number of persons who on a certain day had eaten dinner at the same place. On careful sanitary inspection of the premises, many dead mice were found, and it was also discovered that shortly before "ratin" had been spread about. We know that bacteria of the paratyphoid group may cause acute human infections and intoxications, and the above instance may well have been the result of food contamination with "ratin."

In view, therefore, of the reasonable doubt which exists both of the effectiveness and of the harmlessness for human beings of such viruses as the one mentioned, their indiscriminate employment is to be condemned. Indeed, it would seem self-evident that the first requisite of a virus to be used for the extermination of vermin which are capable of contaminating foodstuffs for human consumption, must be absolute lack of pathogenic power for man.

Current Comment

OSTEOPATHS AND VITAL STATISTICS

The *Springfield Republican* makes this remark in a recent issue: "The New York Supreme Court has denied the osteopaths the right to issue death certificates. They can cure patients; the regular physicians keep the monopoly of burying them." Since the *Republican* is recognized as one of the most ably edited newspapers of the country it would show a lack of the sense of humor if we failed to regard this as a joke, for the *Republican* must know why the court made this ruling. We may be excused, however, if we use the joke as a text for a preachment, since it presents the general conception of the reason for the issuance of death certificates. Laws requiring death certificates as a preliminary for the burial or removal of a body were not enacted and are not enforced for the benefit of the medical profession or for the persecution of osteopaths. It is of no advantage to a physician, and is frequently a decided annoyance to be required to fill out a death certificate setting forth the cause and manner of death. This is required, not for the benefit of the physician but as a safeguard to the community. As Professor Huxley long ago pointed out, it is necessary for the protection of the individual and of society at large that a record should be made of the manner and cause of death of each human being, as a means of preventing and detecting crime as well as to preserve records of causes of death. The value of such data is recognized in all civilized communities. The carelessness of Americans regarding birth and death records is looked on with astonishment by our European neighbors. Cattle, dogs and horses are carefully registered. The birth of even an Angora kitten is considered worthy of record, yet we have practically no birth records while, in nearly half of the United States, human beings die and are buried without any record being made of the fact. The properly educated physician recognizes the importance of death certificates and

1. Bahr: Centralbl. f. Bakt., 1905, p. 263.

furnishes them without compensation, not as a privilege, but as one of his duties to the state. Such legal documents should be certified only by those properly qualified to determine the cause of death.

A LAYMAN'S ADVICE TO PROSPECTIVE MEDICAL STUDENTS

An excellent article on "How to Study Medicine," by Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching, appears in last week's issue of *The Outlook*. It would be of undoubted advantage to medical education if many such articles could appear in lay periodicals. This article calls attention to the excessive number of medical schools, to the alluring advertisements of commercial medical colleges, to the generous educational opportunity now open to anyone, including the poor boy, and to the problem of sectarian medicine. President Pritchett refers particularly to the fact that medicine has been practically made over in the last twenty years; that its practice to-day rests on certain fundamental sciences, such as bacteriology, physiology, physiologic chemistry and the like, which were unknown, or scarcely touched on, twenty-five years ago, and that it is absolutely necessary for the physician of this generation to have a broader general and professional education than was formerly required. The student who is looking toward the medical profession, therefore, should secure, first of all, a good general education and then should obtain a medical course in a college which is sufficiently equipped and prepared to teach medicine in accordance with modern standards. Before deciding on the medical school he shall attend, President Pritchett urges the prospective student to seek advice from some well-informed practitioner in his neighborhood, one who is acquainted with the medical teaching of to-day, and not to allow himself to be misled by alluring advertisements. With the amazing confusion which surrounds medical education in this country to-day, the choice of a medical school is a serious problem, especially for the student who desires to do honest work. Such an article as that by President Pritchett, therefore, is to the prospective medical student as a compass to a sailor in a stormy sea.

STATE BOARD EXAMINATIONS IN MATERIA MEDICA

The National Confederation of State Medical Examining and Licensing Boards is to be congratulated on its action in advising the constituent boards to restrict examinations for licensure in materia medica and therapeutics to questions on the more important drugs. The confederation is also to be felicitated on its adoption of a list of these drugs.[1] While the list selected will hardly please everyone, just as Dr. Eliot's five feet of books failed to win universal approval, it is restricted to drugs in more or less common use, and was considered by the committees which had charge of this matter to meet the requirements. If the various examining boards should decide to follow the plan outlined by the confederation, they would be able to make fairer tests of the knowledge of remedies possessed by applicants for license to practice, and students would be compelled to acquire a thorough and useful knowledge of essential drugs instead of the superficial familiarity with the action of preparations which are almost never used—a pseudo-knowledge which is not only useless but dangerous. This point is worthy of emphasis. The medical student, or even the physician, in trying to gain a knowledge of the ridiculously large and bewildering number of drugs on the market, is attempting the impossible. He acquires real practical knowledge of none. In consequence, his knowledge of the action and uses of even the most important drugs is often vague and imperfect, and he becomes a routine prescriptionist, copying his prescriptions from text-books and journals. If the recommendations of the confederation were adopted, the student could devote the time allotted to this study to the acquisition of a more thorough understanding and scientific application of the more important drugs, to the immense betterment of the practice of medicine in general. The practicing physician also would do well to ponder the subject, for this action of the confederation points the way to the salvation of therapeutics. Therapeutics can never be an exact science, but there is no reason why it should not be based on thorough knowledge, on exact and critical experimental and clinical observation, and on sound reasoning. The discriminating use of a few drugs, well-studied and thoroughly understood, will accomplish vastly more good than the indiscriminate abuse of the numberless drugs which have never been subjected to any real clinical investigation, and which, in many instances, differ but little from nostrums. It is gratifying to note that the confederation has officially recognized and endorsed this necessary reform. It now remains for the various state boards to give it practical effect.

1. See report of the committee, page 1302

EARLY HISTORY OF RENAL SURGERY

Ekehorn, who recently became professor of surgery in the university at Upsala, devotes his inaugural lecture[1] to an account of the early history of renal surgery. He follows its development back to the oldest civilization of which we have any record. While there is reason to believe that surgical operations of consequence were performed in Egypt and Babylonia during the height of culture in those ancient countries, no trace of any operations on the kidney has been discovered. The first historical record of renal surgery is found in the writings of Hippocrates (450-370 B. C.), who recommends well-indicated and rational operations in the regions of the kidneys and on the kidneys themselves. Then came a long and deep silence on this subject, which lasted until the end of the middle ages, when the interest in it again awakened, and yet the field of renal surgery remained practically the same as that marked out by Hippocrates until as late as 1869. In the latter part of the summer of that year, Simon, a Heidelberg surgeon, had as patient a woman, 46 years old, who had been subjected to ovariotomy, after which there developed a ureteral fistula which caused great suffering. After thorough prepara-

1. Upsala Läkaref. Förh., 1910, xv, 343.

tion by means of anatomic and experimental studies, he removed the corresponding kidney and thus restored the patient to perfect health. This operation marks the beginning of the new history of renal surgery.

ANTITUBERCULOSIS WORK IN MASSACHUSETTS

The work against tuberculosis is becoming well organized in many states and is being systematically carried out. The fifth annual report[1] of the Associated Committees of the Massachusetts Medical Society for the Prevention and Control of Tuberculosis is an interesting revelation of the sort of work that is being done. The report of the chairman states that the chief difficulty in obtaining control of the tuberculosis situation in Massachusetts (and this will apply to the work in other states as well) is that of getting hold of the patients early in the disease, and to overcome this the profession must render more assistance, and the use of visiting and school nurses must be extended. Employers of labor must also assist, and outdoor schools for puny children must be established. In the way of educating the public, pamphlets and school exhibits are employed, and employers have helped by distributing cards of caution and instruction with pay envelopes. Registration and disinfection of premises where patients have died are also measures to be encouraged. The pamphlet contains the report of the secretary and the detailed reports of the work done by the committees in the eighteen districts of the state.

Medical News

CALIFORNIA

Pay of Interns.—The supervisors of Los Angeles county have voted to pay interns of the County Hospital an annual salary of $100.

Itinerant Practitioners Taxed.—A new license ordinance has been adopted by the city council of Porterville, by virtue of which itinerant doctors will be obliged to pay a license of $50 per day.

First-Aid Boxes on Streets.—The chief of police of Berkeley has made requisition for twenty-five Red Cross, first-aid-to-the-injured boxes, to be placed near the police and fire alarm boxes. The bicycle policemen will also carry first-aid boxes on their bicycles.

Personal.—Dr. Francis M. Pottenger, medical director of the Pottenger Sanatorium, Monrovia, writes to deny the report which has been circulated to the effect that he is starting or contemplates starting a sanatorium for tuberculosis at Tucson, Ariz., as a branch of the Pottenger Sanatorium.——Dr. H. C. McClenahan, Belmont, who recently returned from Europe, has been elected associate to the chair of mental disease and legal medicine, and assistant in clinical neurology at Cooper Medical College, San Francisco.——Dr. Edwin H. Wiley, Los Angeles, surgeon on the Receiving Hospital staff for nearly three years, was tendered a farewell dinner by the staff of the hospital, September 9. Dr. Wiley has left for Hermosillo, Sonora, Mexico, to take charge of the hospital there.——Dr. Frank W. K. Kidder has been appointed assistant police surgeon of Los Angeles.——Dr. Edward E. Baumeister, Chico, has been commissioned assistant surgeon in the National Guard of California with rank of first lieutenant.——Dr. Ernest E. Thompson, Red Bluff, has succeeded Dr. A. P. Carter, Red Bluff, resigned, as health officer of Tehama county.

1 Paper, 46 pages, September, 1910, 3 Joy Street, Boston.

GEORGIA

Sanitarium Opened.—Dr. James N. Brawner, formerly head of the Pasteur Institute, Atlanta, has opened the Oak Grove Sanitarium near Smyrna, for the treatment of nervous and mental diseases, with accommodation for more than forty patients.

Medical College Opens.—The Atlanta School of Medicine opened for its fall term September 20. The dean, Dr. George H. Noble, presided, and addresses were made by Hooper Alexander, Ex-Governor Northen, and Drs. William S. Kendrick and E. C. Thrash.

Scholarships in Medical College Bestowed.—Under the law making the medical college of Augusta a branch of the state university, the governor made the following bestowals of beneficiary scholarships, September 9: The state at large, T. B. Brantley, Sylvania; W. W. Meadows, Helena; Ollie D. Thompson, Augusta, and Mark E. Perkins, Millen; First Congressional District—J. Felton Burkhalter, Daisy, and T. F. Grooms, Statesboro; Second Congressional District—Jack G. Standifer, Blakely, and T. P. Brown, Beachton; Third Congressional District—W. T. Lanier, Cordele, and C. C. Frederick, Wellston; Fourth Congressional District—J. E. Taylor, Newnan, and Homer L. Barker, Franklin; Fifth Congressional District—C. Mell Smith, Monroe, and Erle Thornton Newsome, Union Point; Sixth Congressional District—C. B. Brookins, Milledgeville, and L. C. McAfee, Macon; Seventh Congressional District—Egbert M. T. Tilton, and M. A. Acree, Calhoun; Eighth Congressional District—E. F. Griffith, Eatonton, and James W. Payne, Monticello; Ninth Congressional District—T. L. Holcombe, Statham, and Howard Kennedy, Gainesville; Tenth Congressional District—John T. Logue, Augusta, and D. L. Murray, Lincolnton; and Eleventh Congressional District—Warren Hall, Nicholls, and W. B. DuVall, Homerville.

ILLINOIS

Chicago

Law Violators Fined.—In the United State District Court, September 23, the Semrad Chemical Company and Allen B. Wrisley Company, charged with misbranding and adulterating flavoring extracts, are said to have been found guilty and fined $200 each.——J. Gartenstein, an "herb doctor," is said to have been found guilty on September 27, of practicing medicine without a license and fined $100 and costs.

Personal.—Dr. Alexander H. Ferguson announces that he has sold his equity in the Chicago Hospital and henceforth will do his surgical work at St. Luke's Hospital on Tuesday and Thursday at 2 p. m.——Dr. Janet Gunn has been elected president of the Board of Managers of the Mary Thompson Hospital, vice Mrs. Charles Fitz Simons, who has been a member of the board for thirty years, but recently resigned on account of illness and who has been made president emeritus.——Dr. John S. Marshall, chief of the dental service of the United States Army, who has been in Manila for three years, is visiting in Chicago, en route to Columbus Barracks, his new station.——Dr. R. C. Corbus has returned from Europe, where he went to investigate Ehrlich's new specific for syphilis. He brought back a quantity of the substance.

INDIANA

New Hospitals.—At Columbus the sanatorium formerly occupied by Dr. A. P. Roope was opened October 3 as a City Hospital, with Dr. Roope as chief surgeon.——At Linton the county council has appropriated $25,000 for a city hospital, which will take care of the numerous miners injured in the district.

Personal.—Dr. J. A. Wooden, Gosport, was elected president of the National Association of Mexican War Veterans, September 6.——Dr. William Engle has resigned as house surgeon at the Wabash Railway Employees' Hospital at Peru, Ind., and has gone to Evansville to locate.——Dr. E. L. Swedener, formerly assistant physician at the Indiana State Reformatory, Jeffersonville, has returned from Nebraska and assumed his old position, succeeding Dr. Walter Levy, who resigned to engage in practice in New Albany.

State Association Meeting.—The annual meeting of the Indiana State Medical Association was held in Fort Wayne September 28-30. A state inebriate hospital was recommended, the creation of a national department of health was advised, and the State Board of Health was endorsed in its fight on benzoate of soda. Indianapolis was selected as the meeting place for 1911. The following officers

were elected: president, Dr. Frederic C. Heath, Indianapolis; vice-presidents, Drs. John N. Hurty, Indianapolis; Andrew S. Dickey, Tipton, and James P. Salb, Jasper; secretary, Dr. Charles N. Combs, Terre Haute; treasurer, Dr. David W. Stevenson, Richmond; and councilors—Third District, Dr. Walter J. Leach, New Albany; Sixth District, Dr. C. S. Hoagland, Milroy; Ninth District, Dr. William H. Williams, Lebanon, and Twelfth District, Dr. Budd Van Sweringen, Fort Wayne, and delegates to the American Medical Association, Drs. Miles Porter, Fort Wayne, and Frederick A. Tucker, Noblesville.

IOWA

Suggests Epileptic Colony.—Dr. Charles F. Applegate, superintendent of the State Hospital, Mount Pleasant, at a meeting of superintendents of state institutions in Des Moines, September 27, suggested the establishment of a colony for Iowa epileptics. He said there were 4,000 of these unfortunates in the state.

Medical College News.—A new medical building is to be erected during the year on the campus of Drake University, Des Moines. A number of changes have occurred in the faculty. Dr. John Hyren Peck has been made instructor in theory and practice of medicine; Dr. Walter Lawrence Bierring, instructor in medicine; Dr. Arthur Steindler, professor of orthopedic surgery, and Dr. Alexander Roche Robinson, professor of pathology.

Elections.—The Iowa Public Health Association, at its meeting in Waterloo, September 21, elected the following officers: president, Dr. Fred Albert, Mason City; vice-president, Dr. Samuel Bailey, Mount Ayr, and secretary-treasurer, Dr. William G. Carhart, Marion.——The Des Moines Pathological Society, at its annual meeting, September 23, elected Dr. James Taggart Priestley, president; Dr. Francis A. Ely, vice-president; Dr. Lawrence P. Piper, secretary-treasurer, and Dr. Alva P. Stoner, member of the executive committee.

KENTUCKY

Antituberculosis Work in Schools.—The Louisville Antituberculosis Association has arranged by the employment of a trained nurse and with the permission of the school board to have lectures given throughout the school year in all of the public schools. The nurse will visit each room and lecture as to the manner of the spread of tuberculosis, its prevention and cure. The superintendent of the public schools has assured the association that every effort will be made to have an open-air school for tuberculous children.

Good Milk Campaign.—The illustrated Sunday supplement of the *Courier-Journal* of September 25 published ten photographs of dairies producing certified milk under the rules laid down by the commission of the Jefferson County Medical Society. Much prominence has been given the Edison moving picture film entitled: "The Man Who Learns," which is being shown at a local moving picture show under the auspices of the distributors of certified milk and the Babies' Milk Fund Association of Louisville, which distributes only certified milk to the babies under its care. This film is educational and contrasts the intolerable conditions prevailing in many dairies before certified milk methods became generally known, with the improvements after they cleaned up. In addition to this film are shown pictures of the adapted milk laboratory of the Babies' Milk Fund Association, a distributing station, with child being weighed and the picture of the baby who gained eight ounces a week while being fed by the Association.

Violators of Food and Drugs Act.—Fifty retail druggists of Louisville appeared before R. M. Allen, chief of the State Food and Drug Division of the Experiment Station to answer charges of alleged violations of the Kentucky Food and Drugs Act of 1908. There were about eighty cases heard, some of the druggists being charged with more than one violation of the act. Among the drugs alleged to have been sold in violation of the act are tincture of opium, camphor, liniment, essence of peppermint, lime water, spirits of niter, witch hazel and tincture of iodin. The department claims that these preparations were deficient in strength, ranging from 10 per cent. to 60 per cent. of the standard strength as prescribed in the United States Pharmacopeia. In view of the fact that these were first offenses and that there were extenuating circumstances in many of the cases, it is likely that only three or four cases will be presented in the courts. Second violations of the act will not be excused and the violators will be prosecuted.

MARYLAND

New Hospitals.—Plans have been completed for the annex to the State Hospital for the Insane, Sykesville (Springfield Hospital). The new building is a two-story brick and stone structure, and is to be devoted to feeble-minded patients.——The Centerville Emergency Hospital, with accommodation for sixteen patients was opened October 1. It is in charge of Dr. Laura Redding, and is under the patronage of the Queen Anne's County Medical Society.

Baltimore

Colleges Open.—The College of Physicians and Surgeons opened October 3, for its annual session. The opening address was made by Dr. Emil Novak.——The Department of Medicine of the University of Maryland opened October 3, without formality.——The session of the Baltimore Medical College began with an address by Dr. Tilghman B. Marden, September 20.——The freshman class of Johns Hopkins Medical School contains fifteen women.

The Herter Foundation Lectures.—The fifth course of lectures of the Herter Foundation was delivered in the auditorium of the physiologic building of Johns Hopkins University by Dr. Hans Chiari, professor of physiologic anatomy in the University of Strassburg. The first lecture was delivered October 5, and was on "The Significance of the Amnion in the Origin of Human Monstrosities," the second on October 6, was on "Necrosis of the Pancreas," and the third on October 7, was on "Spondylolisthesis."

Free Tuberculosis Hospital Urged.—The report has been made to the Municipal Tuberculosis Commission urging a free hospital for tuberculosis patients to accommodate 300 patients, and to cost about $300,000. The report also recommends that children suffering from tuberculosis be excluded from the public schools, that a colony for the care of tuberculous negroes be established, and that a separate ward building for the treatment of children with early tuberculosis be instituted at the Maryland State Sanatorium, Sabillasville. It is suggested that this hospital as well as the Municipal Tuberculosis Hospital, a department of the Almshouse, be placed under the care of the board of health. At present the provision for the care of the tuberculous consists of the Municipal Hospital, the Phipps Dispensary at Johns Hopkins Hospital, a special dispensary at the University of Maryland, and Christ Church.

MASSACHUSETTS

Antituberculosis Tag Day.—The Newburyport Antituberculosis Society netted about $1,000 from a "tag day," September 14.

Ether Day.—The trustees of the Massachusetts General Hospital announce that the exercises of the sixty-fourth anniversary of Ether Day will be held, October 15. The principal address will be delivered by Dr. George W. Crile, Cleveland.

Hospital Opened.—Dr. Philemon E. Truesdale, at the opening of Highland Hospital, Fall River, for patients, September 7, entertained about sixty guests. The address of the occasion was delivered by Dr. J. Riddle Goffe, New York City, on "Modern Surgery." Dr. Goffe also held a clinic in the afternoon.

Personal.—Dr. Thomas F. Donoghue, Boston, has returned from Europe.——Dr. John F. Moore has been appointed police surgeon of Worcester.——Dr. Harry H. Nevers, Lawrence, was recently operated on for appendicitis.——Dr. Burdette L. Arms has been appointed director of the bacteriologic laboratory of the Boston Health Department, vice Dr. Francis H. Slack, who resigned to accept a position at the Kansas State Agricultural College.——Dr. Patrick J. Timmins, Boston, has returned from Europe.

MISSISSIPPI

Personal.—Dr. Richard M. Boyd, Houston, has moved to Aberdeen.——Dr. Edgar D. Craft, Laurel, has passed the examination and been admitted to the Medical Corps of the United States Army.——Dr. William G. Allen, Newton, has been appointed physician for the Rockefeller Fund for the counties of Newton, Neshoba, Lauderdale, and Jasper.

MISSOURI

Medical Journals Consolidated.—The *Kansas City Medical Index-Lancet*, after thirty-two years, has been consolidated with the *Medical Herald* of St. Joseph. The new editor-in-chief is Dr. Charles Wood Fassett, St. Joseph, and the editorial staff includes Drs. S. Grover Burnett, John Punton and Otho L. McKillip, all of Kansas City.

Baby-Farmers Convicted.—Dr. Joel B. McDaniel and Mrs. Mary Rail, Kansas City, tried by the municipal court September 24, on the charge of having operated a "baby farm" are said to have been found guilty. Dr. McDaniel, who, it is alleged, has failed to report the births of infants he had attended, was fined $50, and Mrs. Rail was fined $25 for keeping more than one infant under two years of age for pay.

Free Medical Services at University.—An announcement is made by the president of the University of Missouri that every student in attendance at the university this year will receive medical attendance free. Dr. Woodson Moss, Columbia, is to be university physician. Free care at the hospital is to be given to students, excepting those suffering from communicable diseases, who will be treated in their quarters or in suitable hospitals.

The State Tuberculosis Commission.—The Missouri Commission on Tuberculosis met at the Hotel Jefferson, September 24 and organized and elected Archbishop John J. Glennon, chairman; Dr. Edward W. Schauffler, Kansas City, vice-chairman; J. H. Lynch, secretary, and Dr. William A. Clark, Jefferson City, treasurer. The other members of the executive committee are Dr. George Homan, St. Louis; Mrs. Philip N. Moore, St. Louis; W. K. Bixby, St. Louis; A. A. Speer, Chamois, and Dr. Jacob Geiger, St. Louis. It was decided to make inquiry at once in every feasible manner to locate the extent of tuberculosis throughout the state, and investigate all the public institutions on this point, instituting searching physical examination of patients to determne the fact of the disease, and enlisting the aid of practicing physicians, health officers, registrars of vital statistics, editors of newspapers, etc., to get as complete information on this subject as possible. The funds for the purpose have been subscribed by private individuals. As the result of this it is expected that the public health service of Missouri will be placed in excellent condition. A report will be sent to the governor in December, on which it is expected he will base recommendations to the general assembly for new legislation.——Governor Hadley, on September 24, appointed a negro tuberculosis commission to investigate the prevalence of tuberculosis among the colored race. The members of the commission are Drs. J. T. Caston, Jefferson City; John E. Perry, Kansas City; William S. Carrion, St. Joseph, and George S. Jackson, St. Louis; S. P. Covington, St. Louis, and Mrs. Nevada Kenner, Marshall.

St. Louis

The New Barnes Hospital.—At the meeting of the American Hospital Association, held in St. Louis, September 20, plans for the new Robert A. Barnes Hospital were shown for the first time. The new hospital is to be erected on Kingshighway near Forest Park, and is to cost about $1,500,000, the funds for which were bequeathed by the late Robert A. Barnes who died about fifteen years ago. The hospital buildings, consisting of ten in all, will consist of a children's hospital, the Barnes Hospital proper, a service building, pathology building, school building, nurse's training school, superintendent's residence, power house, and laundry. The other buildings of the group are those of the Medical Department of Washington University. The hospital will have twenty wards and many private apartments, and will accommodate 360 patients.

NEVADA

Personal.—Dr. Charles E. Swezy has been appointed division surgeon of the Western Pacific Railroad with headquarters at Winnemucca.——Dr. Willis W. Stockham has purchased the Duckworth Hospital, Pioche, from Dr. Theophilus D. Duckworth, taking immediate possession.

State Medical Society Meeting.—The Nevada State Medical Association held its seventh annual convention at Lake Tahoe, September 19-21, and elected the following officers: President, Dr. Sidney K. Morrison, Reno; vice-presidents, Drs. William H. Hood, Reno, and Donald McLean, Carson City, and secretary, Dr. Martin A. Robinson, Reno.

NEW JERSEY

To Prevent the Tuberculous from Teaching.—The Camdem Board of Education has adopted rules, which will make it impossible for a teacher, suffering from tuberculosis, to enter or to continue in the service of that city.

Personal.—Dr. George Cunningham has been appointed borough bacteriologist of Vineland.——Dr. Fred M. Corwin has succeeded Dr. Henry D. Abbott as medical inspector of public schools of Bayonne.——Dr. Alonzo L. Leach has been elected president of the board of health, and Dr. Virgie M. D'Marcy, health officer, of Cape May.

NEW YORK

Personal.—Dr. J. Clarence Sharp and Dr. and Mrs. Isador Abrahamson have sailed for Europe.——Dr. John W. Brannan has returned from Europe.

School Out of Doors.—A portico is being built in connection with Public School 33 at Ninth Avenue and Twenty-Seventh Street where forty anemic school children will study out of doors this school year.

The Straus Milk Stations.—A committee consisting of Mr. Homer Folks, Dr. Abraham Jacobi, and Mr. V. Everit Macy, with Mrs. J. Borden Harriman as chairman, waited on Mr. Straus recently. He has consented to further discussion of the subject with the committee and will keep the milk stations open in the meantime.

For Charity.—It has been announced that $6,000 was raised by the bazaar given in August for St. Joseph's Hospital, Far Rockaway.——Father John A. Keller, late rector of St. Gabriel's church, New Rochelle, N. Y., in his will bequeathed $2,000 to St. Joseph's Hospital for consumptives and $1,000 to St. Francis Hospital, N. Y.

Undersized Nursing Bottles.—At the Pure Food Show in Madison Square Garden, Dr. Reichmann recently produced a number of nursing bottles and showed that they were undersized and not correctly graduated. He stated that more than one-half of the bottles tested were found to be 26 per cent. short of the size for which they were sold, thus depriving the infant of more than one-fourth of the food it was supposed to get.

Crocker Bequest Held Up.—The Supreme Court has granted an injunction to the stepchildren of the late George Crocker, restraining the executors from selling property which was bequeathed to Columbia University, that the proceeds of the sale of this property might be used for a cancer research fund. The litigants claim that they were induced to make over their interest in the property to Mr. Crocker during his lifetime, and that he left their property to Columbia University.

The Truth About City's Milk Supply.—The Health Department is preparing an exhibit for the budget show that will tell as nearly as possible the exact truth in regard to the city's milk supply. Because of inadequate funds the department has not done all that should have been done to guard the supply. There are at present only 57 men employed for the purpose of inspecting 44,000 farms, 12,000 stores, 5,500 wagons, 1,100 shipping stations, 75 milk depots, and 15 receiving points. At least 125 men would be required to do the work satisfactorily.

Auto-Ambulance Service for Insanity Cases.—For the first time in the history of the hospital an automobile ambulance service for the handling of cases for the psychopathic ward has been installed at Bellevue Hospital. Hitherto insane patients have been brought to the hospital in patrol wagons by the police, but henceforth the police will have nothing to do with the handling of such cases. This innovation has been made at the suggestion of Dr. Minas S. Gregory, who has been in charge of the insane department at Bellevue for the past nine years.

Hospital Staff Resigns.—The seven doctors who constitute the staff of the Beth David Hospital, until recently known as the Yorkville Hospital, have resigned at the request of the board of directors, owing to a reorganization of the hospital which has come under the control of the Federation of Polish Jews. This organization has appointed a committee to look for a new site and contemplates building a hospital five times as large as the present one, which accommodates only thirty patients. It is said that resignations were asked for because the federation wishes to fill up the staff with its own physicians.

NORTH CAROLINA

Medical College Opens.—The eighteenth annual session of the North Carolina Medical College opened in Charlotte, September 14. Addresses were made by Rev. P. R. Law, D.D., Drs. John R. Irwin, Walter O. Nesbit, and the president and founder of the college, Dr. John P. Munroe.

Personal.—Dr. Charles L. Minor, Asheville, has gone to Europe.——Dr. William D. MacNider, Chapel Hill, has returned from Chicago and resumed his duties at the University Preparatory Medical School.——Dr. John C. Rodman has been appointed a member and chairman of the board of health and city physician of Washington.

Convicted of Abortion.—In the Guilford County Criminal Court, September 23, Dr. William L. Vestal, High Point, who was arrested July 3, charged with the death of Miss Bessie Thomason, Statesville, from criminal abortion, and charged with a like offense, but without fatal results, in the case of May Owen, Linwood, on advice of counsel is said to have pleaded guilty to manslaughter in the first case and to criminal abortion in the second, and to have been sentenced to ten years' hard labor in the state prison.

NORTH DAKOTA

Personal.—Dr. Thomas M. McLachlan, Bismark, has returned from Europe.——Dr. Louis B. Baldwin, superintendent of the State Hospital for the Insane, Jamestown, has been appointed superintendent of the new University Hospital, Minneapolis.

District Society Officers.—At the annual meeting of the Grand Forks District Medical Society, the following officers were elected: President, Dr. W. H. Bates, Grand Forks; vice-president, Dr. Benjamin D. Lemery, Inkster; secretary, Dr. William C. Wilson, Grand Forks; treasurer, Dr. George W. Williamson, Grand Forks, and censors, Drs. James Grassick and Gudmund J. Gislason, Grand Forks.

OHIO

Medical Society Meets.—The McDowell Medical Society, at its annual meeting in Cincinnati, September 15, elected the following officers: President, Dr. S. Cary Swartzel; vice-president, Dr. William L. Shollenbarger; secretary, Franz Miketta, and treasurer, Dr. Peter F. Kilgour.

Tuberculosis Hospital Opened.—As the result of a meeting in Urbana of the members of the joint hospital board, the district tuberculosis hospital, known as the Kinnane District Hospital, has been opened. This hospital is to accommodate tuberculosis patients from Champaign, Addison, and Clark counties.

OKLAHOMA

State Board Appointments.—Dr. George H. Truax, Stonewall, has been appointed a member of the State Board of Medical Examiners, vice Dr. Joseph Hensley, Oklahoma City, and Dr. Harry L. Lott, Oklahoma City, has been appointed an alternate member of the board.

Medical College Opens.—The formal opening exercises of the Medical Department of the University of Oklahoma, Oklahoma City, were held September 15. Addresses were delivered by President A. Grant Evans of the university and Dr. Arch. K. West, dean of the medical school.

PENNSYLVANIA

Poliomyelitis Report.—County reports to the State Health Department show that since the first of July, 830 cases of infantile paralysis have been reported in the state. Of this number, Philadelphia showed 112 cases; Northampton, 130; Allegheny, 32; Lehigh, 11; Lancaster, 148; Berks, 15, and Westmoreland, 30.

Personal.—Dr. Jonathan C. Biddle, superintendent of the State Hospital for Injured Persons, Fountain Springs, was badly injured, October 1, when in endeavoring to avoid a boy his automobile went over an embankment.——Drs. Lawrence Litchfield, Irwin J. Moyer, John W. Boyce, Thomas D. Davis, and Percival J. Eaton have been appointed members of the examining board of the Civil Service Commission of Pittsburg.

Hospital Dedicated.—The St. Margaret's Memorial Hospital, Lawrenceville, Pittsburg, was opened for public inspection October 1. The hospital, which has been closed for ten years, has been newly equipped and can accommodate about eighty patients. The attending staff includes Drs. Percival J. Eaton, Elwood B. Haworth, Sidney A. Chalfant, Evan W. Meredith, William C. White, William W. Blair and William P. Barndollar.

Philadelphia

Veterans as Guests.—The next reception held by the Medical Club of Philadelphia at the Bellevue-Stratford, October 23, will be given in honor of the members of the profession throughout the state who have been graduated in medicine fifty years or more.

Trachoma Institute Report.—The report of the Trachoma Institute, 227 Pine Street, shows that 680 patients were treated for this disease during the month of August. Of these, 240 were new cases. This clinic is open daily and the treatment is free.

Officers Elected.—At the meeting of the Medical Society of the fifth censorial district, composed of Adams, Cumberland Franklin, Fulton and New York counties, held at Hanover, August 17, the following officers were elected for the ensuing year: President, Dr. Alexander C. Wentz, Hanover; vice-president, Dr. J. Burns Amberson, Waynesboro, and secretary and treasurer, Dr. George E. Holtzapple, York.

Personal.—Drs. J. William White, Arthur J. Brewe, and McCluney Radcliffe have returned from Europe.——Dr. Alan L. Diefenderfer was the guest of honor at a dinner given September 30 by the medical staff of the German Hospital to celebrate the completion of his term as intern in the hospital.——Drs. Cheny M. Stinson, Harry A. Streckert, and A. C. Luhr have been appointed to the gynecologic staff of Jefferson Hospital.——Dr. Adam Klemm sailed for Europe September 27.

TEXAS

Personal.—Dr. David J. Hardin, Kirk, was shot and seriously wounded at his home September 20.——Dr. Duren, Utopia, was seriously injured in a runaway accident in San Marcos, September 23.

New Society Organized.—It is announced that at a meeting of the City and County Health Officers of Texas, at Houston, a society known as the Tropical Disease Research Society was organized. Its membership consists of health officers and others interested in the study of tropical diseases.

WYOMING

Personal.—Dr. J. W. Garard has been appointed house surgeon of the State General Hospital, Sheridan. Dr. John B. Hynds, house physician at the hospital, has resigned.——Dr. Darwin E. Brown, Laramie, has succeeded Dr. Herman E. McCollum, Laramie, as physician of Albany county.

State Society Meeting.—At the twelfth annual meeting of the Wyoming State Medical Society, held in Casper, September 28 and 29, the following officers were elected: President, Dr. Albert G. Hamilton, Thermopolis; vice-presidents, Drs. T. A. Dean, Casper; William H. Roberts, Sheridan, and Samuel B. Miller, Laramie; secretary, Dr. Marshall C. Keith, Casper; treasurer, Dr. Neil D. Nelson, Shoshone, and editor of the Wyoming Department of the *Western Medical Review*, Dr. Fred W. Phifer, Wheatland. The next meeting will be held in Thermopolis.

GENERAL NEWS

Coming Fraternity Banquet.—The seventh annual banquet of the Nu Sigma Nu Alumni Association of New York will be held December 3, at the Yale Club, 30 West Forty-Fourth Street, New York City.

Personal.—General Health Officer J. S. B. Pratt, Honolulu, of the Territorial Board of Health of the Hawaiian Islands, is making a three months' visit to the United States.——The Department of State has selected the following delegates to the International Conference on Tuberculosis, to be held in Brussels: Dr. Hunt, Dr. Mazyck P. Ravenel, Madison, Wis.; Dr. Arnold C. Klebs, Chicago, and C. H. Baldwin, Washington, D. C.

Advisory Board Called.—The gravity of the situation regarding the possible introduction of cholera from the infected sections of Europe has been made evident by the call issued for the Advisory Public Health Board of the Public Health and Marine-Hospital Service to meet in Washington, October 10. This board is composed of Drs. Simon Flexner, New York City, director of the Rockefeller Institute of Medical Research; Dr. William P. Sedgwick, Boston; Dr. Victor C. Vaughan, Ann Arbor, Mich., president of the Michigan State Board of Health; Dr. Frank F. Wesbrook, Minneapolis, and Dr. William H. Welch, Baltimore.

FOREIGN NEWS

Personal.—Dr. Dawson Williams, London, editor of the *British Medical Journal*, who was seriously injured in an automobile accident July 9, is still disabled, but improving slowly.

Mexican Hygienic Exposition and Congress.—The exposition to show the progress of Mexico from a sanitary point of view, during the latter part of the last hundred years, was opened in the City of Mexico, September 2. Charts, models and photos of six of the larger cities and especially the City of Mexico, illustrate the progress made comparatively recently in supplying potable water and in draining large centers of population. A model modern hygienic hacienda building is one of the exhibits and has its walls covered with charts illustrating the progress made by Mexico in the last twenty-five years in fighting infectious diseases, such as typhus, scarlet fever, yellow fever, small-pox, consumption, etc. A

section of the exhibition shows the precautions taken against the introduction of foreign diseases and unhealthy immigrants, models of sanitary stations, the lodging houses for immigrants, etc. Another section shows models of rural hospitals in Mexico for the use of consumptive patients, and models of the general hospital in Mexico City and in Mexico, also models showing the evolution of baths, laundries, and dwelling houses from the most rudimentary conditions. Two large rooms are devoted to the exhibition of the progress which has been made in Mexico in the public schools, by photographs of the schools in the capital and in the cities and towns throughout the Republic.

Other Deaths in the Profession Abroad.—Aside from deaths mentioned by our foreign correspondents, we note the following: Marc Dufour, M.D., professor of ophthalmology at Lausanne, Switzerland, and a leading figure in specialist and medical circles and a public-spirited citizen, died recently, aged 67. He was an honorary member of numerous scientific societies at home and abroad and was president of the international ophthalmologic congress held at Lucerne in 1904. Two years later he took a trip around the world. For some years he has been the editor of the *Revue Médicale de la Suisse Romande*.——The chief of the medical service in the Swiss army, Dr. A. Mürset, recently succumbed to cerebral hemorrhage, at the age of 50, while on a vacation trip near home.——The death of A. A. Rubio, M.D., at an advanced age, is reported from Cuba. It is stated that all the public places of amusement in his city, Pinar del Rio, closed on the days of his death and funeral as a token of respect.——Italy has recently lost two prominent otolaryngologists, Drs. F. di Colo of Pisa and C. Secchi; also the director of the maternity at Vercelli, G. Raineri, M.D., from infection during an operation; and P. Mantegazza, M.D., professor of anthropology at Florence and president of the Italian Ethnologic Society, formerly professor of general pathology at Pavia and author of numerous popular scientific works.——M. Dominguez, M.D., professor of therapeutics at the University of Mexico, died recently.——Mary A. Marshall, M.D., one of the oldest medical women in Western Europe, died at Cannes, aged 73.——E. Malzeva, a young Russian woman physician succumbed at Yskor to cholera, and the provincial authorities have founded a scholarship in her name at the Woman's Medical College at St. Petersburg in appreciation of her services during the epidemic.

Cholera in Europe.—An Italian exchange states that the daily papers in the department of Apulia announced that some of the district physicians there fled when cholera became epidemic. The national board of health has appointed a committee to investigate the matter. The president of the association is chairman of the committee, which includes, besides three other physicians, a representative from each of the two newspapers involved. In discussing the matter it was proposed that the district involved in an epidemic should temporarily insure the lives of non-medical men whom the authorities call on for medical services, and that better provision should be made for the families of sanitary officers dying at their posts in times of such epidemics.——The Prussian government, by Robert Koch's advice, installed bacteriologic laboratories at the points where the Vistula and Memel rivers enter the country from Russia, and examine all the crews of boats and rafts passing down the river. Over 5,200 persons were thus examined during the five weeks after July 1, and three healthy germ-carriers were discovered by this means and rendered harmless. It is stated that there are over thirty institutes prepared to make bacteriologic examinations of the kind in Germany, all under the control of the national health authorities and the Berlin Institute for Infectious Diseases.——Free postgraduate courses on cholera have been organized at Vienna and elsewhere.——The last official reports from Russia place the number of cases of cholera at 170,353 with 77,466 deaths. A letter from Dr. A. Dworetzky of Moscow in the *Münchener med. Wochenschrift* just received, states that of the 1,082 cities throughout the Russian empire only 192 have a public water supply and only 38 a sewerage system. This includes 762 cities in European Russia; only 149 have a public water supply and 27 a sewerage system. He describes the features of the present epidemic of cholera and adds that he would hail with gratitude the carrying into effect of the suggestion mentioned in the Berlin Letter, page 1212, that the other European governments should bring pressure to bear on the Russian government to take more effectual measures against cholera, as the Russian epidemics are a perpetual menace to other lands.

MANILA LETTER

(From Our Regular Correspondent)

MANILA, Aug. 16, 1910.

The Civil Hospital

The famous "case of the Civil Hospital" has been disposed of at last. The Governor-General has said the final word in regard to an investigation of the management of the institution, and has let it be understood that the affair is to be considered disposed of. This case had its origin last May when a disgruntled American nurse resigned and made public severe charges against the institution. Others also who were more or less dissatisfied were induced to give their opinion. As the season was dull (the government bureaus being removed temporarily to the summer capital at Bagio) and the newspapers were short of news the incident was given much publicity, and became a topic of general conversation. In the absence of the Governor-General, the Secretary of the Interior and the Director of Health, the Assistant Director of Health ordered an investigation into the conditions and management of the hospital—a procedure which seems to have been irregular. The Civil Hospital is an institution maintained by the government for the benefit of its employees in Manila and the neighboring towns. Government employees and members of their families are given medical attention, prescriptions and medicines free of charge. Nor is there any charge for hospital and nursing services, other than the cost of meals served to patients. Some time ago, for the sake of economy and the efficiency of the service, it seemed desirable to make certain changes in the management and staff of the hospital, since, as in the opinion of the Governor-General, "there is no doubt whatever but that under the previous management of the hospital the care of government property and supplies was lax and there was greater consumption than the conditions justified, and that a change in the method of accounting for property was necessary. It is also found that some of the criticisms leveled against the new system which has been established are unjustified; that some of the nurses have purposely tried to make the new system unpopular and fail by not taking the trouble necessary to comply with the new regulations and then informing the patients that the resultant lack of facilities was due to the stinginess of the administration, a course which does not commend itself highly to fair-minded people. In the main, however, it is believed that the nurses of the Civil Hospital are high-minded, hard-working and faithful and that they may be depended on to cooperate in everything which is required of them for the good of the service and the success of their work. It is believed that the criticism of purposely trying to make the new system fail is one which can be leveled at so few individuals as to make it by no means a charge against the nursing force in general, and that repetition of such practices need not be apprehended for the future." It has been maintained by many that keeping competent American nurses in the Philippines will always be a difficult problem. Indeed, if American nurses were the only ones available this might prove a very serious drawback to hospital work and medical education in the islands, but the experiment of training the Filipina girls to be nurses has turned out so well that perhaps in the near future the services of very few American nurses will be required in the Philippines.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 24, 1910.

Fees for Insurance Examinations

The practice of some insurance companies of offering very low fees for the medical examinations of applicants for life insurance when the sum assured is small is a standing grievance and subject of controversy in the medical profession. It is pointed out that whether the sum assured be small or large the trouble is exactly the same if the examination is to be thorough, and all insurance companies desire this. The usual fee for examination paid by good companies, who generally insure for sums ranging from $2,500 upward, is $5, but in the case of the postoffice (which undertakes insurance for small amounts) and the companies which among the working classes insure for sums as low as $500 or even less, the fees are as low as $1, even $0.50. The pressure of competition enables the companies to get examinations made for these very low fees, but practitioners in good position often decline the work, and there is strong feeling in the profession that they should be refused by everyone. The subject has again

come into prominence in consequence of the attempt of the Pearl Insurance Company to obtain medical examinations, and reports at the following rates: If the sum assured is £125, £0.75; if over, £125, but not exceeding £250, £1; if over £250, but not exceeding £500, £1.50. The temptation is held out that the number of proposers will be large, and therefore it will be worth while to undertake them. The scheme is strongly condemned by both the *Lancet* and the *British Medical Journal*. The former suggests that if it is not possible for actuarial reasons to pay larger fees, the company should ask only for a medical examination and carrying no responsibilities; the latter states that if such fees are accepted there will be tendency for the value of the reports and the amount paid for them to assimilate.

Decline of the Antivaccinationists

Though, as shown in previous letters, a lamentable decline has taken place in the number of children vaccinated in Great Britain in consequence of the reduction of the obstacles to those who obtain exemption for their children on the grounds of conscientious objection to vaccination, it is of some satisfaction to know that the militant antivaccinationists are a dwindling body. The income of the National Antivaccination League has so much declined that in the current year it was only $100 a month. In 1909 the amount was 200; in 1908 over $300 and in 1907 over $400 a month. Other evidences of failure are shown in dissensions among the leaders and in the repeated withdrawals of odious charges against the profession in connection with vaccination which the official organ of the league, the *Vaccination Inquirer*, has been compelled to make.

New Methods of Treating Cancer

The ninth report of the cancer research laboratories of the Middlesex Hospital contains an account of the trial of new empirical methods of treating cancer in the cancer wards of the hospital. (This hospital alone among the general hospitals of London has special cancer wards and special cancer research laboratories.) The patients were all the subject of inoperable malignant disease. Seven cases were treated with arylarsonates—6 with soamin and 1 with atoxyl. The treatment was pushed until symptoms of arsenical poisoning were produced. In no case was there any benefit, not even relief of pain. Three patients were treated with the neoformans vaccine without any result than recurrent jaundice in 1 patient. Coley's fluid was used in 3 cases of sarcoma and in 1 of carcinoma. In the latter there was slight relief of pain; in 2 of the former there was no beneficial action, but in the third the result was remarkable. The patient was a healthy-looking girl, aged 20, who was admitted for a large primary sarcoma of the inguinal glands. It measured 5½x4x4¾ inches. The margin was nodular and irregular. It was firmly fixed to Poupart's ligament and also adherent to the skin. She was given 28 injections of Coley's fluid, beginning with a dose of quarter of a minim, which was increased until 25 minims were reached. The injections produced recurring febrile attacks, which resulted in progressive anemia that threatened to be fatal, and therefore led to the stoppage of the treatment. On the other hand, the effect on the tumor was for a time remarkable. Within a fortnight from the commencement of the treatment there was distinct diminution in size in all its diameters. At the end of a month the improvement reached a maximum. The tumor was mobile and free from the skin and had diminished to one-fourteenth of its former cubic content. The overlying skin was white, soft and supple. Enlarged glands, previously incorporated in its margins, gradually separated from its retracting borders and were found mobile and discrete on either side. By this time, however, 25 minims of the fluid were required to produce any reaction at all and the general toxemia was marked. The injections, which at first were painless, caused great suffering and were often followed by local suppuration. Further treatment was abandoned at the patient's request. The growth again rapidly enlarged, ulcerated through the skin and caused death 3 months later. The necropsy showed primary glandular sarcoma and metastases in the portal mesenteric, bronchial and cervical glands.

Pitchblende (from which radium is extracted, and which consists mainly of uranium oxid) was used in 14 cases. In some beneficial results but no cures were obtained. The pitchblende diminished concomitant acute inflammatory reaction and appeared to encourage fibrosis of the tumor. If pain was due to infiltration of skin it gave great relief. Its effect on enlarged cervical glands causing pressure symptoms seemed worthy of further trial, but was less hopeful. Pain due to pressure on deeper structures was not relieved. Hence there was no marked relief in cases of uterine cancer, for the pain is mainly due to infiltration and pressure on the pelvic nerves and viscera at a distance from the primary growth. In rectal cancer, in which the growth usually becomes annular and the pain is due to fecal obstruction and resulting proctitis, the pain was relieved and the obstruction diminished.

PARIS LETTER

(*From Our Regular Correspondent*)

PARIS, Sept. 23, 1910.

Metallic Radium

Up to the present, the substances known under the name of radium have been in reality only salts of that metal, such as radium bromid and chlorid. In one of the last sessions of the Académie des Sciences, Mme. P. Curie made a report from which it appears that, in collaboration with M. A. Debierne, she has succeeded in obtaining pure radium. For this purpose, 106 mg. of radium chlorid were electrolyzed with an anode formed of 10 gm. of mercury. The radium amalgam thus obtained is unstable in air; it decomposes in water. After having been dried it is rapidly introduced into an iron combustion boat, previously reduced in pure hydrogen. The boat is then placed in a quartz tube and a vacuum is immediately produced in the apparatus. Distilling is done in a hydrogen atmosphere and under a pressure superior to the pressure of mercury vapor. The radium thus obtained presents the form of a white, brilliant metal, adhering strongly to the iron of the boat. This metal makes a blackened mark like a burn on paper. It decomposes in water energetically, becoming completely dissolved, especially on the addition of a very little hydrochloric acid. Mme. Curie intends to study the radioactive qualities of metallic radium.

Monument to Professor Cornil

At Cusset, near Vichy, the native city of Dr. Victor Cornil, former professor of pathologic anatomy at the Paris college of medicine, who died April, 1908, a monument has just been dedicated to his memory. The monument represents Professor Cornil standing with a book in his right hand and a microscope in his left. Bas-reliefs represent the professor teaching. The dedication ceremony was presided over by M. Doumergue, minister of public instruction.

The Stage of Undergraduate Pharmacists

The new organization of studies leading to the diploma of pharmacist has introduced important modifications into the conditions under which the *stage* of students in pharmacy has been taken. Under the regulations hitherto in force the *stage* has lasted three years; hereafter it will be only one year long. Up to the present it has been possible to take it in any laboratory whatever, hereafter it can be taken only in laboratories designated by the rectors of the universities on the recommendation of the superior schools or the mixed colleges of medicine and pharmacy. The *stagiaire* will be obliged to keep a record of the *stage* endorsed by the secretary of the school or the recording clerk of the justice of the peace at the time of entrance and at every change from one laboratory to another.

For Uniform Methods of Analysis of Potent Drugs

The tenth International Congress of Pharmacists, which has just been held at Brussels, and to which official delegates were sent from the United States, France, Italy, Spain, Russia, Sweden, Norway, Denmark, Hungary, Holland, Greece, Japan, China, Argentina, Chili, etc., has made a request of the Belgian government to invite other governments as soon as possible to an international conference for the uniformity of methods of analysis of potent drugs. Following the example of the International Congress of Medical Sciences held at Budapest last year, the International Congress of Pharmacists decided to form a permanent international association, the seat of which shall be the Hague.

Prize of the Society for Infantile Hygiene

The Société d'hygiène de l'enfance has announced a competition for 1910, the subject of which is "The Temporary Sojourn of Children Away from the Family in France or in Foreign Countries." Memoirs should be addressed to the president of the Société d'hygiène de l'enfance, at 10 rue Saint Antoine, Paris, and should be received before Dec. 31, 1910.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 15, 1910.

Personal

The fiftieth anniversary of his professional career was celebrated Sept. 14 by the eminent physiologist, Professor Hering of Leipsic, who is still an active member of the university faculty. He was presented by his pupils and friends with a *Festschrift* on the occasion of his jubilee.

Sterilization of Street Clothing in the Public Hospitals

The municipal authorities of Berlin, after investigation of the subject in other hospitals in the country, have issued the following regulations in regard to the clothes worn to the hospital by the patients: 1. On admittance all articles of clothing infested with vermin are to be sterilized, also the clothing from persons with contagious disease or coming from a family or close environment in which contagious disease is known to prevail. 2. The clothes and linen are to be sterilized with steam, except leather, rubber and fur articles and hats, which are to be sterilized with formaldehyde. 3. The clothing is to be kept hung up, enclosed in a separate clothing bag; the linen and shoes are to be wrapped separately and placed inside the other bag. 4. The body linen is not to be washed unless especially soiled. 5. The clothing is not to be ironed before being returned to the patient.

Health in the German Navy

According to the recently published sanitary report for the German navy from October, 1907 to October, 1908, the number of sick out of about 50,000 men were, on board ship, 15,000 or 501 per thousand, and on land 13,500, that is, 672 per thousand. The largest number of admissions was on ships in East Africa, 961 per thousand. Fully 816 per thousand of all those treated were dismissed as fit for duty, 1.5 per thousand died (0.88 per thousand of the entire force); 2,144 men (45.4 per thousand of the entire force), were dismissed as unfit for service. Among the diseases which led to dismissal on account of an affection already present before treatment, the first place was taken by heart disease, 9.75 per thousand; 18 committed suicide, and 58 died by accident. The largest number of deaths from disease were due to appendicitis, 11; next to tuberculosis of the air passages, 10, and pneumonia, 7. Death by accident ensued most frequently from drink, 28, and explosion, 20. The mortality of the entire force amounted to 3.1 per thousand, which was smaller than in the English navy for 1908 (3.37 per thousand) and in the American 5.76 per thousand. Among individual diseases those of the digestive tract were the most marked. The morbidity figure for gonorrhea (26.4 per thousand), and that for syphilis (17.3 per thousand), was greater than in the previous year. The number treated on account of mechanical injuries was 4,078 (92.2 per thousand); 339 were attacked with appendicitis (6.8 per thousand) and 3,414 with affections of the respiratory organs (68.3 per thousand).

The Berlin System of Prompt Aid for the Sick and Injured

The organization of the system of prompt aid for the injured has now been completed at Berlin. Besides the 13 emergency stations in the large hospitals, there are 17 auxiliary stations and a central information and record bureau to supply information as to vacant beds in the various hospitals, to which the sick and injured can be referred, and also to centralize all the sanitary emergency work, including the lifesaving stations along the river, etc. The assistant to the mayor, the *zweiter Bürgermeister*, is in charge of the whole system and the executive details are in the hands of the *Magistratssekretäre*, who is in constant local and telephone control of all the stations at any moment, day and night. The auxiliary stations are designated by uniform signs, and about 12,000 metal signs have been posted throughout the city, giving the location of the nearest emergency station, and transparent signs for the same purpose have been installed on the lamp-posts at numerous points in the more crowded streets. In connection with this first-aid work, uniform provisions have also been made in case that many are injured at one time; the central station in the city hall is to be the organized center for all the single and collective rescue work. The police and fire department have all received instructions to this effect. The importance of the organization is shown by the constant demands made on the various stations. For example, last month the auxiliary emergency stations cared for 5,000 cases, thus about 166 every day.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Sept. 20, 1910.

Suicides in Vienna

The statistical report of the board of health of this city cites, among other interesting items, the figures on suicides. It appears that the numbers are constantly increasing at a higher rate than the average increase of the population, for 1,203 persons attempted to take their lives in 1907; in 1908, the figure was 1,236, and in 1909, it was 1,373. Of the last number 520 succeeded. Eight hundred and fifty-eight men and 515 women tried to kill themselves, but only 378 men and 146 women attained their object. The oldest candidate for suicide was 88 years old, the youngest only 12. Seven hundred and eighty-four persons hanged themselves, this being the favorite method of suicide in this city. One hundred and twenty-two shot themselves; three persons attempted self-destruction by pouring oil, spirits or gasoline on the clothes and setting fire to them. The motives were generally, in the order of frequency, misfortune in love, incurable disease or poverty. It is interesting to note that the frequency of attempts at suicide lessens in winter (in December only 30 cases), while it increases in summer, and is at its height in autumn (in October 50 cases).

The Cholera in Hungary

In spite of every active and energetic measure, the outbreak of sporadic cholera could not be prevented in Hungary nor in Austria. Vienna has so far had 7 cases, which were dealt with accordingly, and there is every reason to hope that that will be the last of it. In Hungary the opinion of nearly all epidemiologists favors the idea that the Danube is the means of distribution of the disease. In a certain mining district in Mohacs, the center of infection has been found, and thence it was conveyed by the coal to the Danube ships, which in turn brought it to Vienna and Budapest. The majority of the cases—hitherto 99—have been found amongst the coal miners. Naturally prophylaxis and quarantine interfere greatly with the normal course of business life. The majority of the Hungarian population is agricultural, which makes prophylactic measures very difficult. Just now the harvest of fruit and grapes causes often gastro-intestinal troubles, and as every such case is brought invariably to the hospital for the sake of diagnosis and eventual isolation, much unpleasantness has been caused. But altogether, there is no reason to regard the country as infected, since the sporadic cases have been well controlled, and the other districts where suspicious cases have appeared are very few in number. Instructions have been issued to inform the people officially of the necessity of calling in a medical man at the earliest symptoms of trouble of the alimentary canal.

Marriages

HARRIS GOLDMAN, M.D., to Miss Lena Goldstein, both of Baltimore, August 21.

FREDERICK F. ZELLE, M.D., to Miss Amelia E. Maunder, both of St. Louis, September 28.

J. C. S. BROWN, M.D., to Miss M. Ethel Hunter, both of Sutherland, Sask., September 21.

HOWARD DAVIS LEWIS, M.D., Baltimore, to Miss Floride Lewis, at Baltimore, September 22.

JOSIAH H. HOLLAND, M.D., U. S. Army, to Miss Margaret Clark of Evanston, Wyo., September 22.

ARTHUR HOWARD DODGE, M.D., U. S. Navy, to Miss Eleanor Creason, at San Francisco, September 6.

JAMES GOLDEN STEWART, M.D., to Miss Dorothy Jane Sedgwick, both of Grover, Colo., September 21.

WILLIAM RAVINE, M.D., to Miss Hannah C. Shilt, both of Cincinnati, at Long Island, N. Y., September 21.

GEORGE G. GANDY, M.D., to Miss Clemantine Rousek, both of Humboldt, Neb., at London, England, September 5.

EDWARD TOPHAM, M.D., San Francisco, to Miss Cecil Belle McLellan of Beresford, Cal., at Richmond, Cal., September 15.

LUCIUS AUGUSTINE FARNHAM, M.D., to Miss Edwina Daniell, both of Calumet, Mich., at London, England, September 20.

WILLIAM HENRY WALSH, M.D., Philadelphia, to Miss Eugenia Gray McIntosh, at Longwood, near Glenwood, Md., September 22.

Deaths

Joseph Gilman Jarrell, M.D. Tulane University, New Orleans, 1892; a member of the Medical Association of Georgia; for several terms president of the Georgia Medical Society, and vice-president at the time of his death; consulting physician to St. Joseph's Hospital, Savannah; assistant surgeon of the First Georgia Infantry, U. S. V., during the Spanish-American War, with service in Porto Rico; later major and surgeon of the First Infantry Georgia National Guard; and chief surgeon of the hospital corps of the Savannah Volunteer Guards; for one term a member of the city council; died in Savannah Hospital, September 20, from septicemia, due to an operation wound, aged 42.

Carey Kennedy Fleming, M.D. Northwestern University Medical School, Chicago, 1886; a member of the American Medical Association; and formerly president of the Denver Clinical and Pathological Society; secretary of the Colorado State Board of Medical Examiners; major and surgeon, N. G., Colo.; professor of obstetrics and gynecology in Gross Medical College, and later professor of abdominal surgery in the Denver and Gross Medical College; gynecologist to St. Anthony's, Mercy and St. Luke's hospitals, and the Herman Strauss Free Clinic, Denver; died suddenly at his home, September 24, from cerebral hemorrhage, aged 46.

Charles Augustus Rahter, M.D. Long Island College Hospital, Brooklyn, 1864; of Harrisburg, Pa.; a member of the American Medical Association; some time president of the Dauphin County Medical Society; vice-president of the Medical Society of the State of Pennsylvania, and president of the Harrisburg Academy of Medicine; acting assistant surgeon in the Army during the Civil War, and surgeon in the German army during the Franco-Prussian War; United States pension examiner, and president of the Harrisburg board from 1885 to 1889; died in Atlantic City, September 21, from cerebral hemorrhage, aged 71.

James A. Young, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; a member of the Kentucky State Medical Association; for one session adjunct professor of theory and practice of medicine in the St. Louis Homeopathic College; and assistant professor of diseases of children in the Southwestern Homeopathic College, Louisville; died at his home in Hopkinsville, September 24, from tuberculosis, aged 64.

William Gibbons Daggett, M.D. University of Pennsylvania, Philadelphia, 1884; a member of the American Medical Association; lecturer on bacteriology and later on clinical medicine in Yale Medical School; attending physician to the New Haven Hospital, and secretary of the New Haven General Hospital Society; died in the New Haven Hospital, September 18, a week after an operation for appendicitis, aged 50.

David Arthur Fletcher, M.D. State University, College of Homeopathic Medicine, Iowa City, 1895; died at his home in Hartley, Iowa, August 19, from the effects of carbolic acid, believed to have been self-administered with suicidal intent while suffering from mental aberration, aged 37.

C. J. Christensen, M.D. University of Nebraska, Omaha, 1902; of Broken Bow, Neb.; a member of the Nebraska State Medical Association; who had started for the Pacific coast six weeks before on account of ill health; died in Portland, Ore., September 15, from heart disease, aged 35.

Frederick L. Gage, M.D. Long Island College Hospital, Brooklyn, 1876; a member of the Ohio State Medical Association; health officer of Delaware, Ohio, in 1907 and 1909, and coroner of Delaware county since 1904; died at his home September 19, from arteriosclerosis, aged 63.

Annie Marie Selee, M.D. Boston University School of Medicine, 1882; one of the founders of the Boston Homeopathic Hospital; at one time a member of the Melrose school board; died at her home in that city, September 24, from injuries received in a fall ten days before, aged 77.

Norman A. MacNab, M.D. McGill University, Montreal, 1907; a surgeon of the Grand Trunk Pacific Railway in its construction work west of Edmonton, Alberta; died at Mile Forty-two Hospital on that line, near Edmonton, September 16, from typhoid fever, aged 24.

Anthony Romig Finck, M.D. University of Pennsylvania, Philadelphia, 1871; for many years supreme medical examiner of the Shield of Honor; and for more than half a century a practitioner of Philadelphia; died at his home September 19, from pleuropneumonia, aged 77.

John H. Cowles, M.D. Castleton (Vt.) Medical College, 1862; a surgeon of New York Volunteers during the Civil War; and a pioneer practitioner of Furnas County, Neb.; died at his home in Weeping Water, Neb., March 23, from cerebral hemorrhage, aged 78.

Orlando Logan, M.D. University of Buffalo, 1882; a member of the American Medical Association; for fifty-four years a practitioner; surgeon in the Army during the Civil War; died at his home in Girard, Pa., August 20, from chronic heart disease, aged 81.

Joseph Chamberlain Caldwell, M.D. Medical School of Maine, Brunswick, 1870; a member of the Maine Medical Association; of Buckfield; died while making a professional call on a patient at East Sumner, June 17, from heart disease, aged 67.

Thomas C. Green, M.D. Medical College of Indiana, Indianapolis, 1882; a veteran of the Civil War; and formerly a practitioner of Albion, Ind.; died at the home of his son in Fort Wayne, September 15, from abscess of the lung, aged 65.

John Philip Phillips, M.D. New York Medical College, New York City, 1859; surgeon of the Eleventh New York Volunteer Infantry during the Civil War; died at his home in New Haven, Conn., September 20, from senile debility, aged 77.

William C. Dodds (license, years of practice, Iowa, 1887); for sixty years a practitioner of medicine and for fifty years of that time a resident of Cedar Bluffs, Iowa; died at the home of his son near that place, September 15, aged 88.

Hugh P. Credille (years of practice, Texas); a member of the State Medical Association of Texas; for more than thirty-five years a practitioner of Commerce; died at his home in that city, February 21, from nephritis, aged about 60.

Francis A. Bryant, M.D. Worcester (Mass.) Eclectic Medical College, 1856; for fifty-two years a practitioner of Cedar Falls, Iowa, and three times mayor of the city; died at his home, September 4, from senile debility, aged 84.

Oren Newton Dages, M.D. Harvard Medical School, 1910; an intern in Massachusetts General Hospital, Boston, was drowned September 21, in Lake Magog, N. H., in an attempt to rescue two girls who were drowning, aged 25.

John A. Fuson (license, Tenn., 1889); of Dowelltown; for more than half a century a practitioner of DeKalb County, Tenn., and twice a member of the state legislature; died at the home of his son in Liberty, April 19, aged 74.

Horatius Latto, M.D. Long Island College Hospital, Brooklyn, 1890; formerly a member of the Medical Society of the County of Kings; died in Brooklyn Hospital, April 18, from cerebral hemorrhage, aged 50.

Elijah G. Tracy (license, Bedford County, Ind., years of practice); a member of the Medical Society of the State of Pennsylvania; died at his home in Sylvania, August 30, from senile debility, aged 85.

James W. Ferguson (license, Kansas, 1901); formerly of Thayer and Stafford, Kan.; a pioneer physician of Neosho county; died at the home of his son in Chanute, September 16, from cancer, aged 62.

Joseph Thomas Dupuy, M.D. Jefferson Medical College, 1861; a member of the Medical Society of Virginia; of Laurel Hill; died in Memorial Hospital, Richmond, September 7, from dysentery, aged 75.

Percy Benton, M.D. University of Louisville, Ky., 1882; a member of the Kentucky State Medical Society; formerly of Brodhead; died at his home in Mount Vernon, Ky., May 28, 1909, aged 47.

James Mostyn McCarter, M.D. University of Toronto, 1896; of Verona, Ont.; died in the Kingston General Hospital, September 15, four days after an operation for appendicitis, aged 37.

Edward A. Wilcox, M.D. Rush Medical College, 1857; who served his district as representative and senator in the state legislature; died at his home in Minonk, Ill., September 23, aged 80.

Thomas F. Phillips, M.D. University of Nashville, 1874; a member of Bradley County (Tenn.) Medical Society; died at his home, September 5, from the effects of the kick of a horse, aged 63.

John Beverly Crowell, M.D. College of Physicians and Surgeons, New York City, 1873; died suddenly at his home in East Orange, N. J., September 21, from heart disease, aged 60.

William G. Lloyd, M.D. University of Tennessee, Nashville, 1890; formerly of Kingston, Ark.; died at his home in Rocky, Okla., August 3, from ptomain poisoning, aged 48.

Pharmacology

YONKERMAN'S "TUBERCULOZYNE"

International Quackery—A Comparison of the Protection That is Accorded the British and the American Publics

Time was when the United States was the dumping ground for the British quack and nostrum vender. The absence of medical practice acts, or the inadequacy of such as existed, made many of the states a fertile field for the quack from across the water or for the discredited British physician. The lack of enforcement of such state food and drug laws as existed and the absence of any federal law on the subject left the American people at the mercy of as heartless a gang of quacks and "patent medicine" exploiters as ever plied their disreputable trade.

This influx of quacks and nostrum makers from over seas has been largely diminished since the advent of the Federal Food and Drugs Act. In fact the current has set in the other direction and now instead of the American public being fleeced by the English medical fakers the American quack is finding the English public "good pickings."

It is surprising to those who have kept in close touch with the "patent medicine" question, how many medical and medicinal frauds of American origin are now being vigorously exploited in Great Britain.

The reason for this improved state of affairs is to be found in the activities of the federal, and to a certain extent the state, authorities in this country, in prosecuting various

Consumption Book
200 PAGE MEDICAL BOOK ON CONSUMPTION
FREE
This valuable medical book tells in plain, simple language how Consumption can be cured in your own home. If you know of any one suffering from Consumption, Catarrh, Bronchitis, Asthma or any throat or lung trouble, or are yourself afflicted, this book will help you to a cure. Even if you are in the advanced stage of the disease and feel there is no hope, this book will show you how others have cured themselves after all remedies they had tried failed, and they believed their case hopeless.
Write at once to the Yonkerman Consumption Remedy Co., 6718 Water Street, Kalamazoo, Mich., and they will gladly send you the book by return mail free and also a generous supply of the New Treatment, absolutely free, for they want every sufferer to have this wonderful remedy before it is too late. Don't wait—write today. It may mean the saving of your life.

Fig. 1—Photographic reproduction of a Yonkerman advertisement typical of those appearing in the cheaper magazines and the less particular newspapers of this country. From *Happy Hours*.

fraudulent medical concerns. This, coupled with the campaign of enlightenment against the great American fraud that has been consistently carried on by the American Medical Association for the past few years through THE JOURNAL, the Association laboratory, and the Council on Pharmacy and Chemistry has resulted in a steadily narrowing field of operations for the quack and the nostrum seller in the United States.

Great Britain, on the other hand, has a Food and Drugs Act that is neither as broad nor as specific as our own. The British courts, too, have shown a decided tendency to treat the "patent medicine" faker with a leniency that is compatible neither with good sense nor public policy.

That this attitude is largely due to a lack of appreciation on the part of the judiciary of the evils inherent to the nostrum traffic is evident from the remarks made by the judge before whom was tried the case of the British agents for that cocain-containing nostrum, "Tucker's Asthma Cure," *versus* the *Lancet*. It may be recalled that this leading legal light in referring to the cocain habit made the following statement: "Surely, it must be infrequent. I thought it was chiefly to be found among the Indians of South America." The indiscriminate sale of habit-forming "patent-medicines" is not likely to be very greatly restricted in the British Isles while such monumental ignorance exists in high places.

Fig. 2—A much reduced photographic reproduction of a typical British advertisement of Yonkerman's "Tuberculozyne." From the London *Daily Mirror*.

An interesting example of the greater laxity on the part of the authorities in Great Britain in controlling quackery may be found by comparing the "literature" issued by Derk P. Yonkerman of Kalamazoo, Mich., and London, England, for use on opposite sides of the Atlantic. Yonkerman runs a "consumption cure" of the usual quack type, consisting chiefly of a potassium bromid mixture and a full set of "follow-up" letters and other "literary" accessories in the way of testimonials, etc.

Free samples of the nostrum are sent out by both the American and English branches of this fake and a comparison of the respective labels is interesting:

ENGLISH LABEL	AMERICAN LABEL
Tuberculozyne Yonkerman.	Tuberculozyne (Yonkerman)
The New Remedy for Consumption.	The New Remedy for Consumption.
The Only Known Remedy for all forms of Consumption.	Not a Patent Medicine.
An Antitoxin Acting Agent of the Greatest Therapeutic Value.	

It will be noticed that the statement "The Only Known Remedy for all Forms of Consumption" which is to be found on the English labels, is absent from the labels on the American samples. The reason is plain. The American Food and Drugs Act declares that lying on the label is illegal—and as the statement in question is a palpable falsehood, the company, doubtless, will not risk a possible prosecution by putting it on the American product. Probably for the same reason the other untruth, viz., "An Antitoxin Acting Agent of the Greatest Therapeutic Value" is also omitted from the American labels.

Fear of the postoffice fraud-order is doubtless responsible for the generous pruning of the "literature" sent out by this

concern from its Kalamazoo office, resulting in a corresponding protection to the American public. For instance, a booklet is sent out purporting to describe "Tuberculozyne" and its use in consumption; in England this brochure bears the title:

"TUBERCULOZYNE (YONKERMAN) CURES CONSUMPTION"

This, of course, is an untruth as vicious as it is cruel. The expurgated American edition, therefore, goes through the mails with this title

"CONSUMPTION, ITS DIAGNOSIS, TREATMENT AND CURE"

Many other little twists, omissions and modifications are found that indicate the value of the American postoffice fraud-order.

ENGLISH EDITION	AMERICAN EDITION
"There have been found *cures* for small-pox . . ."	"There have been found *safe precautions, such as vaccination,* against smallpox . . ."
"Consumption remained as *mysterious* and deadly as ever."	". . . consumption has remained as *insidious* and deadly as ever."
"Tuberculozyne (Yonkerman) the most wonderful and marvellous medical discovery of the age, cures consumption."	[Not in the American edition.]
". . . the Tuberculozyne treatment introduces copper into the blood . . ."	[No mention is made, in the American edition, of the "copper salts" said, in the English edition, to be the essential element of the "cure." The omission is probably due to the fact that copper if present at all in this fake exists in such infinitesimal quantities as to have no appreciable therapeutic action.]
"Tuberculozyne is a combination of certain salts of copper . . ."	
"Tuberculozyne — 'the Copper Cure for Consumption' . . ."	

There are numerous other details in the American edition of the Tuberculozyne booklet that have been toned down from the English version so as more nearly to correspond, if not with the facts, at least with probabilities. In giving the "life history of Dr. Derk P. Yonkerman," for example, we find that Englishmen are asked to believe that Yonkerman

". . . won prizes for proficiency in every study in the curriculum."

Americans, fortunately, do not have their credulity strained to the same degree for in the United States edition we read that Yonkerman merely

". . . won many prizes for proficiency in his studies."

Whether this modification is a tribute to the natural skepticism of the American public or to the stricter postal laws that obtain on this side of the water is not known. That modesty had anything to do with it is unthinkable. Many other equally interesting differences between the claims made on opposite sides of the Atlantic might be quoted but the whole matter can be summed up by saying that in England the style of the Tuberculozyne booklet is that of "the Lie Direct," while in the United States it approximates "the Lie with Circumstance."

A word in closing regarding the composition of this fake. The nostrum comes in two solutions which have been analyzed in this country by Dr. L. F. Kebler of the Bureau of Chemistry, U. S. Department of Agriculture, in Australia by the Board of Health of Sydney, N. S. W., and in Great Britain both by the public analyst and by the British Medical Association. Like every nostrum, the formula seems to vary at the whim of its exploiter. We give the latest analysis, that made for the British Medical Association and published in "Secret Remedies."

"No. 1 was a bright red liquid; analysis showed it to contain in 100 fluid parts, 3.4 parts of potassium bromid, 12 parts of glycerin, a trace of a pungent substance, sufficient oil of cinnamon (or oil of cassia) to give a flavor, a very small quantity of alcohol, and cochineal coloring matter darkened with a trace of alkali; no copper was present. The following formula gave an exactly similar liquid:

Potassium bromid	3.4 parts
Glycerin	12.0 parts
Oil of cassia	0.1 part
Tincture of capsicum	0.17 part
Cochineal coloring	q. s.
Caustic soda	0.06 part
Water to	100 fluid parts

"No. 2 was a brown liquid, one specimen being bright and another containing a little sediment. Analysis showed it to contain in 100 fluid parts, 18 parts of glycerin, sufficient essential oil of almonds to give a flavor, and a coloring matter which appeared to be burnt sugar. No copper was found in the small free sample, but the larger bottle of No. 2 contained 0.01 per cent. of copper, and a trace of sulphate; this quantity of copper is equivalent to 1/48 grain of crystallized copper sulphate in each fluid dram. As regards the other ingredients the following formula gave an exactly similar liquid:

Glycerin	18.0 parts
Essential oil of almond	0.1 part
Burnt sugar	q. s.
Water to	100 fluid parts

"The estimated cost of ingredients for No. 1 and No. 2 together is 2½ d." (5 cents).

Yonkerman has two prices for his "Tuberculozyne;" in England he asks £2 10s. 0d. ($12) while his own countrymen get the same thing for $10. Not altogether the same, either, as the "literature" sent out in Great Britain is typographically more elaborate and, as has been shown, the claims are more preposterous.

Tuberculozyne, we are told, is sold, "at a very moderate advance above actual cost." If selling 5 cents worth of drugs for $10 or $12 is Yonkerman's idea of "a very moderate" profit, we shudder to think what might have happened if instead of electing to follow quackery as a trade he had turned his talents toward the field of "high finance."

SIMPLIFICATION OF MATERIA MEDICA EXAMINATIONS

Report of the Committees on Materia Medica of the National Confederation of State Medical Examining and Licensing Boards and of the Council on Medical Education of the American Medical Association

With a view to fostering a more thorough knowledge of the really important drugs, the National Confederation of State Medical Examining and Licensing Boards, at its last meeting in Atlantic City, June, 1909, authorized the appointment of "a committee of three, to confer with the Council on Medical Education of the American Medical Association and to compile and to report to this Confederation a list of the more important drugs and their preparations, to which the examinations of the constitutent boards may be confined, this list to be published in THE JOURNAL of the American Medical Association as with the approval and endorsement of the confederation."

In accordance with these instructions, the two committees have conferred by correspondence, and herewith submit a list as requested. Since the instructions of the committee of the Council on Medical Education applied only to the drugs generally used by the profession, it was not deemed advisable to prepare at this time an official list for examinations in homeopathic materia medica.

In presenting to you the official list of drugs for state board examinations in materia medica, we wish to emphasize the fact that it will accomplish its purpose most effectively if the individual state boards will publicly record their inten-

tion of confining their examinations to this list. The chairman of either committee will be glad to receive such assurance.

For the Confederation:

M. G. MOTTER, *Chairman.*
J. C. GUERNSEY.
GEORGE MACDONALD.

For the Council on Medical Education:

TORALD SOLLMANN, *Chairman.*
BERNARD FANTUS.
EGBERT LE FEVRE.

OFFICIAL LIST OF DRUGS FOR STATE BOARD EXAMINATIONS IN MATERIA MEDICA

The following list has been framed with the view of including only those drugs which are commonly conceded to be practically indispensable in the general practice of medicine and as many preparations as are needed to bring these into play.

It does not aim to contain all the drugs which are of some interest or even of some importance, but, as has been said, only those which are indispensable. The others can scarcely be deemed fair subjects for license examinations. Their selection, for purposes of instruction, may be safely left to the individual teachers, who, if they wish, can obtain suggestions in the list of the Committee of One Hundred of the Council on Medical Education of the American Medical Association.

The drugs marked with an asterisk (*) are introduced for their toxicologic importance.

LIST OF DRUGS AND PREPARATIONS

FLAVORS:

- Syrupus
- Syrupus Glycyrrhizæ
- Aqua Menthæ Piperitæ
- Elixir Aromaticum
- Spiritus Menthæ Piperitæ

LOCAL IRRITANTS:

- Sulphur Lotum
- Ichthyolum
- Tinctura Iodi
- Liquor Iodi Compositus
- Iodoformum
- Aqua Hydrogenii Dioxidi
- Acidum Tannicum
- Oleum Terebinthinæ
- Copaiba
- Oleum Santali
- Ceratum Cantharidis
- Aloe and Aloinum

BITTERS, VEGETABLE CATHARTICS AND ANTHELMINTICS:

- Tinct. Gentianæ Comp.
- Syrup Rhei Aromaticus Fldext. and Arom. Fldext. Rhamni Purshianæ
- Santoninum
- Thymol
- Resina Podophylli
- Pulvis Jalapæ Comp.
- Oleum Ricini
- Oleum Tiglii
- Oleoresina Aspidii
- Pelleterinæ Tannas

EMOLLIENTS AND PROTECTIVES:

- Oleum Olivæ
- Glycerinum
- Petrolatum (also Album and Liquidum)
- Oleum Theobromatis
- Adeps Benzoinatus
- Adeps Lanæ Hydrosus
- Acacia (and mucilage)
- Collodium Flexile
- Oleum Morrhuæ (and Emulsum)
- Pepsinum

ALKALOIDAL DRUGS:

- Strychninæ Sulphas
- Tinctura and Extr. Nucis Vomicæ
- Caffeina Citrata
- Theobrominæ Sodio-Salicylas
- Opii, Pulvis, Extr., Tinct., and Tinct. Camph.
- Pulvis Ipecac. et Opii
- Morphinæ Hydrochloridum
- Codeinæ Phosphas
- Cocainæ Hydrochloridum
- Fldext., Extr., and Tinct. Belladonnæ
- Atropinæ Sulphas
- Scopolaminæ Hydrobromidum
- *Nicotina
- Homatropinæ Hydrobromidum
- Pilocarpinæ Hydrobromidum.
- Physostigminæ Salicylas
- Apomorphinæ Hydrochloridum
- Ipecacuanhæ, Pulvis, Fldext. and Syrupus
- Aconiti Tinctura and Aconitinæ
- Quininæ Hydrochloras and Sulphas
- Tinctura Cinchonæ Comp.
- Fldext. and Ext. Colchici
- Colchicin

BENZOL DERIVATIVES:

- Acetphenetidinum
- Acetanilidum
- Sodii Salicylas
- Phenol and Phenol Liquefactum
- Phenylis Salicylas
- Resorcinol
- Creosotum

BIOLOGIC PRODUCTS:

- Epinephrin
- Gland. Thyroideæ Siccæ
- Serum Antidiphtheriticum
- Serum Antitetanicum
- Vaccina Variolæ

HYDROCARBON NARCOTICS:

- Alcohol (and Sp. Frumenti and Sp. Vini Gallici)
- Æther
- Chloroformum
- Nitrogen Monoxid
- *Carbon Monoxid
- Chloralum Hydratum
- Sulphonmethanum
- Liquor Formaldehydi
- Hexamethylenamina

NEUTRAL PRINCIPLES:

- Digitalis, Pulv., Infus. and Tinct.
- Strophanthi Tinct.
- Strophanthinum
- Ergotæ, Fluidextr. and Ext.

SUNDRY:

- Spir. Camphoræ (and Linim.)
- *Acid. Hydrocyanic. Dil.
- Spir. Glycerylis Nitratis
- Amylis Nitris
- Oxygen
- *Carbon Monoxid

SALINES:

- Sodii Chloridum
- Magnesii Sulphas
- Liquor Magnesii Citratis
- Sodii Phosphas
- Saccharum Lactis
- Ammonii Chloridum
- Calcii Chloridum
- Potassii Bromidum and Sodii Bromidum
- Potassii Iodidum
- Potassii Acetas
- Potassii Chloras
- Potassii Permanganas
- Sodii Boras

ALKALIES AND ACIDS:

- Aqua Ammoniæ (and Aromatic Spirit)
- Ammonii Carbonas
- Sodii Bicarbonas
- Creta Preparata
- Liquor Calcis (and Lin.)
- Acid Hydrochloricum Dil.
- Acidum Boricum

METALS:

- Arsenii Trioxidum
- Liquor Pot. Arsenitis
- Antimonii et Potas. Tart.
- Bismuthi Subcarbonas and Subnitr.
- Ferrum Reductum
- Pil. and Massa Ferri Carbonatis
- Syr. Ferri Iodidi
- Tinct. Ferri Chloridi
- Alumen
- Argenti Nitras
- Cupri Sulphas
- Plumbi Acetas
- Phosphorus
- Zinci Sulphas
- Ung. Zinci Oxidi
- Hydrargyri Massa and Ung.
- Hydrargyrum cum Creta
- Hydrargyrum Ammoniatum
- Hydrargyri Oxidum Flavum
- Hydrargyri Chloridum Corrosivum
- Hydrargyri Chloridum Mite
- Hydrargyri Iodidum Flavum and Rubrum

Correspondence

Postgraduate Study of Pediatrics in Vienna

To the Editor:—The fact that we find so few American physicians who are interested in the diseases of children, studying in the medical centers of Europe, makes it seem probable that the opportunities for work in Europe along the line of pediatrics are not fully understood in America. This fact, taken in connection with the effect produced on me by a very discouraging editorial in THE JOURNAL (July 25, 1908, li, 320), has made me think it possible that a few words from one who has recently been on the ground are not wholly uncalled for. I feel this the more strongly in view of the difficulties I myself experienced in my efforts to obtain information about European work in children's diseases before starting on my trip. The reason for this was twofold: the men who had recently come back had worked along lines other than my own, whereas the men who had worked in pediatrics had been away so long that their details were, in the main, hazy and indefinite. I can speak, at first hand, only of Vienna and conditions there; for there I spent most of the short time at my disposal. What I shall have to say, also, will be entirely from the point of view of the man who desires, primarily, pediatrics. Furthermore, I naturally look at things through the eyes of a "short-term" man.

First, a word as to the general system of graduate work in Vienna. The American Medical Association of Vienna may

well be likened to a graduate college in connection with a large university. It boasts a floating membership of one hundred students, graduates in medicine, chiefly Americans; arranges for courses by university professors, docents, instructors and assistants; and through the dean of the University of Vienna grants a *Zeugniss*, or certificate, for work done and courses taken.

The courses, embracing all the branches of medicine and surgery, general and special, are posted on a bulletin board at the Café Klinik, which serves as headquarters and general rendezvous for the American physicians in the city; and membership in these courses, up to the number of vacancies announced, is, with a few unimportant exceptions, granted in the order in which applicants have signed their names to the announcing slips. The courses run, as a rule, for one month, starting generally on the first. They cost from $10 to $20 a month, and occupy from one to two and a half hours a day, five or six days in the week. They may be taken for a month single, or as often as desired, the changing clinical material doing away with any danger of tiresome repetition.

And now for the work especially in children's diseases. Professor Escherich of the University of Vienna has gathered around him a coterie of young men, of whom Professor von Pirquet, until very lately of Vienna, now of Johns Hopkins University, is perhaps the most widely known. These men give courses in pediatric diagnosis, infant-feeding, laboratory methods especially applicable to children, etc., and hold themselves in readiness to give courses in any special work that may be desired. Special work in the dispensary, where two men handle the actual work, with and constantly under the instruction of the assistant, has been considered by many men one of the best courses in Vienna, and must usually be spoken for one, two, three or even more months in advance. When I say that I have seen more than a hundred patients (children under 12 and infants) treated in the two small dispensary rooms of the Heilige Anna Kinderspital, of an afternoon, after a morning's work of similar proportions, and add that the wards are rich in feeding cases, infectious diseases and the usual line of the diseases of older children, it will be seen that (thanks to the Austrian social system that sends so many cases to the hospital and the dispensary that with us would go to private physicians) these men have no lack of material to demonstrate. I feel that it would not be fair to speak specially of Docent Hamburger, whose never-failing courtesy and good nature were even more notable than his excellent, idiomatic English, without acknowledging as well a debt of gratitude to Messrs. Schick, Reuss and Sperck, who were never too busy to stop their most important work in order to clear up a doubtful point or to show an interesting case, no matter how long past the hour for closing it chanced to be. Docent Knöpfelmacher's course, at his own Karolinen Kinderspital, must also be mentioned here, as well as the very valuable short courses in tracheotomy and intubation—theory, mannikin and actual practice—which are to be had with any one of several of the assistants.

Hardly less important, to the man fresh from his hospital, but lamentably "stale" as to his memory of the specialties which he "learned" (save the mark!) in the six-weeks courses of his fourth year in medical school, are the opportunities given for reviewing these often slighted, because too little understood, branches of medicine. Skin and ear especially, eye, nose and throat perhaps to a less degree, orthopedics most of all, are very important "minors" for the man who has chosen pediatrics as his "major." The opportunities for a casual or more thorough review of any or all of these subjects are many and valuable. I need not say cheap, when a little calculation, on the basis of some statements made above, will show the prevailing rate for such courses to be from 40 to 60 cents an hour! (See catalogues of some of the postgraduate schools in this country, or of the medical schools that give graduate summer courses, for comparison!)

As to what can be found in other cities, I can only say, from a very short experience in Berlin and from the conversation of men I have met who have worked there, that the "course" system is not so fully developed in the German capital as it is in the Austrian; and that at the latter center it is much easier to fill up one's schedule for the entire day than it is at the former. Munich, a delightful city to live in, has the "course" system not at all; but work can easily be arranged for there to the extent of the clinical material available; and Professor Pfaundler's kindness to Americans leaves nothing to be desired.

Board and room in Vienna can be obtained for $1.20 a day up, or down, if one can prevail on an Austrian friend to act as his business agent, and can prevail on himself to put up with the lack of some of the things that most Americans insist on having. The more one knows of German, the more valuable, naturally, will be one's experience here; but not a few men in Vienna to-day speak no German, but what they have learned since leaving home—and that, in more instances than one, is woefully little!

Perhaps more men than we realize have the opportunity of taking a few months of study abroad after leaving their hospitals and before settling down to practice, but are deterred from a feeling that nothing of value can be obtained in so short a time. Of course, this a matter that every man must decide for himself; and yet, to my mind, the mental broadening, the inspiration, the refreshing brushing away of intellectual cobwebs that one gets in a few months or even weeks in a foreign city, leave no shadow of doubt that the short-term man is well repaid for any sacrifice that he may have to make in order to gain his short time abroad.

F. H. Richardson, M.D., Brooklyn.

Registration of Foreign Physicians

To the Editor:—Kindly allow me a few words in final answer to Dr. Nathan, who is laboring under some delusion. I regret very much the personal tone this matter has taken, but for the sake of an understanding by Dr. Nathan let me say:

First. I never alluded to Canadians or their registration.

Second. I never wrote about practicing in Canada nor of the difficulty American physicians find in qualifying to practice in that country.

Third. I alluded solely to the difficulty South-African-born medical men have in obtaining the right to practice in South Africa. German, French and Russian physicians of the highest standing were forced, after years of practice in South Africa, to proceed to London (directly after British occupation) to obtain the British certificate to continue practice. Surely the egotism of British physicians is not so great as to suppose that all physicians except those of British colleges are poorly informed and trained. I knew whereof I spoke, and would refer Dr. Nathan to my only communication in The Journal September 3. If Dr. Nathan re-reads the various communications that have appeared in The Journal during the last six weeks I think he will find that he has been answering an article which I did not write.

James A. Honeij.

[Comment: We have received a number of other communications on this subject, some of them decidedly personal in character, and for this reason we think it best to close the discussion. No objection can reasonably be raised to the requirements fixed for the right to practice medicine in any country unless there is a clear discrimination against the physician of other countries. The requirements in Germany, although severe, are apparently equally enforced for all applicants, whether they are educated in Germany or elsewhere. Likewise in Great Britain the requirements seem to be the same for all candidates regardless of nationality. A country may be slow to recognize foreign educational institutions, but this is justifiable owing to the greater difficulty of securing accurate information regarding them. It is worthy of note, however, that in Great Britain the diplomas of no less than twenty medical colleges in the United States are now recognized. It is true that the requirements to practice medicine in most foreign countries are more severe than they are in the United States, but the reason is that in many of our states the requirements are ridiculously low or are not prop-

erly enforced. The requirements to practice medicine in most of our states should be made more thorough, not for the purpose of preventing foreign physicians from obtaining licenses, but to protect the public from illiterate and untrained doctors no matter where they come from.—ED.]

A Visit to Ehrlich

BERLIN, GERMANY, Sept. 13, 1910.

To the Editor:—Not since the announcement of Koch's tuberculin has there been such an onslaught of medical men on Germany.

Going down on the train from Berlin to Frankfort with me there were no less than five physicians, all eager to be the first to see Professor Ehrlich and to obtain a supply of the now famous "606."

To those who are fortunate enough to become acquainted with Dr. Marks, the first assistant, the task of seeing Professor Ehrlich is not difficult. But without his good services one would have to wait at least three or four days, for the waiting list daily is from thirty to forty physicians. These men, coming from all parts of the globe, think that Professor Ehrlich should receive each one personally, and at once give him a supply of the new specific. On his refusal to do so, they at first entreat and later become indignant, and some have become little short of violent. It is no wonder one finds the little man nervous and distracted; but notwithstanding, he treats all visitors who are gentlemen with the greatest courtesy and consideration.

As the substance is given out entirely for experimental purposes, Professor Ehrlich is exceedingly careful into whose hands it goes, feeling that the only persons competent to use it are trained syphilographers with laboratory affiliations.

Professor Ehrlich was greatly disturbed by the numberless letters and cablegrams which poured in from all over the world, some of them from men who were not in the least qualified to administer the new remedy. He asked me, in consequence, to cable you to advise all American doctors to stay at home and not write, as the drug would be on the market in due time.

Ehrlich is a little disturbed over the accusation that he is about to make a fortune out of this new substance, for such is not at all the case.

This specific, as well as all others that have been invented in the laboratory under the direction of Ehrlich, was patented, not from any selfish motive, but to protect his discovery.

Around Ehrlich in Frankfort are a large number of chemical factories which hold many valuable patents on some of our well-known preparations. So if Ehrlich soon after discovering the true nature of atoxyl, and after having made his first three substitute products, had not secured patents on these, which are but the initial steps to three distinct fields of chemical possibilities, these factories would have obtained patent rights which would forever have closed this field of research to Ehrlich, and there would have been no "606."

Ehrlich personally is not to profit at all from the discovery. Before he was positive of the result of his work, he arranged that should it be a success 55 per cent. of the proceeds should go to his laboratory (which is sorely in need of funds) to continue along in this research work, and that the other 45 per cent. should go to the manufacturer.

By the patenting of the remedy we are assured of the following: first, the substance will be made with great care and with absolute uniformity, guaranteed by Ehrlich. Second, he has assured me that the substance will be put on the American market at exactly the same price for which it is sold by the European trade, plus the duty.

The amount of clinical work seen in Frankfort is limited to Herxheimer's clinic, where it is most thoroughly done, though on a small scale.

It might be interesting to you to know that the representative of *McClure's Magazine* was in Frankfort very recently, and that an article will appear in the November and December issues treating syphilis in all its phases from a layman's standpoint, and that the lay press here in Frankfort, as well as in Berlin, keep the public informed from time to time on the results of this discovery; and further, that it is a common occurrence for a patient infected with the disease to come to a clinic and ask to have the new remedy administered to him.

In Berlin at the Virchow Krankenhaus, Wechselmann's clinic at the present writing offers the largest amount of material for observation. Here over 900 cases have been treated, and the results are on the whole most gratifying.

At this clinic one can see treated syphilis in every form, from babies 10 days old to an old man in his eighty-fifth year, who was so unfortunate as to contract a specific primary lesion at this late date.

Most brilliant are the results which are obtained in tertiary lesions. In these, gummatous distinctive processes begin to heal at once, but in order to continue this improvement it has sometimes been necessary to repeat the injection, and in one instance the injection was given three times.

The work of Lesser and Citron, while not conducted on such a large scale, is equally interesting, and the reports that come from their clinic should be most valuable.

In regard to the administration of diamido-arsenobenzol, Ehrlich is most particular that no patient who has any retinal changes, cardiac lesions or kidney disease shall receive any of the substance.

The modes of administration are numerous, as every clinician is trying to attach his name to Ehrlich by the application of his own special technic. These different methods will have to be tried out, and the fittest will be the longest survivor.

A word in regard to the Wassermann reaction for diagnosis. In all cases that have been previously treated with mercury the test still holds good, but in cases that have been treated with "606," the test, for a short while after the injection, has no value, as some report an early negative reaction and some the contrary. It will be a long time before any statistics on this point will be available, so until then we shall have to wait.

In general, one would say:

First, "606" is a specific agent against spirochetes.

Second, one injection will not cure every case of syphilis, but it seems possible to destroy the spirochetes by one injection, if it be given sufficiently early.

Third, it is absolutely contraindicated to administer "606" without first having made a positive diagnosis, by finding spirochetes or by the serum diagnosis of Wassermann.

B. C. CORBUS, Chicago.

Cholera Among British Troops During Indian Mutiny

To the Editor:—Your notices of the rise of Asiatic cholera to epidemic proportions in certain parts of Europe, with comments on the means by which it is spread, recall a fact mentioned by a British officer in a new book which gives an account of the siege of Delhi, as it came within his personal observation. The officer, Griffiths, says that the British troops employed in the siege were scourged by cholera, and that the camps were plagued by myriad swarms of flies, this fact being regarded as a coincidence merely. The mortality from cholera exceeded the losses caused by the ferocious fighting at the front, which continued many weeks between combatants maddened by racial hates and wrongs and under a midsummer sun, neither side giving or asking quarter.

With our present knowledge it would appear only too plainly that the relation between the flies and cholera was not a coincidence, but rather cause and effect. A hint is given as to the food supply of the British by the story the officer tells, that when the city was finally taken, after days of severe street fighting, he was returning to quarters one morning through avenues cumbered with torn and rotting bodies. He asked his servant what there was for breakfast and was told "fried liver." This was the last straw, and it was only after some weeks that he was able to return to duty.

He also mentions, as an eye-witness, the peculiar psychic and physical effects attending the blowing of men from the muzzles of cannon, a form of military execution employed at that time to punish Sepoy mutineers.

GEORGE HOMAN, M.D., St. Louis.

"The Stomach Whistle: Who Blew It First?"

To the Editor:—The question of priority discussed in THE JOURNAL, September 3, p. 879, by Drs. Spivak and Kemp, recalls to my mind that as early as 1884 Dr. S. J. Meltzer of New York, in connection with his studies of the deglutition sounds, carried on experiments with a stomach tube having a whistle at one end and a balloon for blowing in air at the other end. One incident remained vivid in my mind. At his request I introduced such a tube into his esophagus. On one occasion the procedure brought on an alarming attack of spasm of the glottis which Dr. Meltzer relieved by swallowing sips of water in rapid succession, a method of treatment described by him a few years previously. I am not delegated by Dr. Meltzer to claim any priority for him; I simply wish to record the fact and thus contribute to the history of the invention of the stomach whistle.

JUSTIN WOHLFARTH, M.D., Asheville, N. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SIMPLE GOITER AND ITS TREATMENT

To the Editor:—Has the recent advancement in knowledge regarding the functions of the thyroid thrown any light on the subject of simple goiter? Just how are the iodids used in what has been called the "interrupted method?" Having used iodin externally and sodium iodid internally for three months without improvement, would it be wise to continue the treatment, and if not, does this exhaust our armamentarium? The patient is a young girl of fourteen with a small, simple goiter affecting mainly the right lobe and isthmus. She is otherwise normal. J. A. R.

ANSWER:—Recent studies of the thyroid and its functions seem to indicate that enlargement of the gland up to a certain point is a compensatory process. On account of an increased demand of the system for thyroid secretion the glandular elements proliferate. A moderate amount of hyperthyroidism, due to sexual development, is not infrequent in girls at puberty. This is often true also of the normal thyroid during pregnancy. At such times there is a hypertrophy of the gland which may be called a goiter but which is only physiologic and will subside of itself within a shorter or longer period. In cases in which the enlargement persists or increases, it is probably in the beginning a compensatory process, as stated, the increase beyond a doubling of the size of the gland being probably due, according to Dr. C. H. Mayo, to the fact that portions of the hypertrophied gland lose their function, the latter being taken up by the more newly formed gland tissue. In case this hypertrophy extends beyond the point of compensation and too much secretion is taken up by the system, the symptoms of hyperthyroidism or exophthalmic goiter may be produced; the condition is no longer a simple goiter. Thus there may be a distinct relation between simple goiter and the exophthalmic form. Wilson says that from the clinical standpoint exophthalmic goiter is caused by an enlargement of the gland with hypersecretion, while a simple goiter is enlargement of the gland without symptoms of hypersecretion, and that if a patient lives long enough every case of exophthalmic goiter will become a case of simple goiter. It must be remembered, however, that the case may be one of exophthalmic goiter or Graves' disease apparently from the beginning, and that there may be scarcely any noticeable enlargement of the gland; also that the enlargement may be due to a cystic condition and not to hypertrophy of gland tissue. The etiology of the condition which induces the enlargement has not been definitely determined, but in certain portions of the mountainous country of Europe, where goiters are unusually frequent, it is attributed to the water.

It seems to be the opinion of many authors that the iodids are the best agents for the condition, though a number of other drugs and measures are employed. We understand by the "interrupted method" of using the iodids the giving of the proper dosage of some iodid three times a day, for a period, for instance, of three months, and then allowing a rest of a week, or two weeks, or even a month before resuming the treatment. While most physicians do not believe in the use of external applications, some recommend them, as for instance, the use of an ointment of the red iodid of mercury, iodin, etc. In view of the possible etiologic relation of water the patient may be directed to drink only boiled water. Ergot and belladonna have been given, and electrolysis by means of needles plunged into the substance of the gland, the tapping of cysts, incisions of the isthmus, ligation of arteries, partial thyroidectomy and the administration of the thymus of sheep, are measures that have been employed. Thyroid extract or thyroid feeding is also effective in some cases of simple goiter.

In the case mentioned by our correspondent, while the enlargement on one side might seem to indicate that the gland may be cystic, yet it may only be a case of physiologic hypertrophy due to the advent of puberty, and measures directed to the establishment of normal menstruation by the administration of iron, and by other roborant treatment, with the lapse of a little time, may be all that is necessary to effect a cure.

BISMUTH-VASELIN PASTE

To the Editor:—Please inform me where I can procure literature on the history, success and merit of the bismuth-vaselin paste treatment, more particularly when applied to suppurating sinuses.

GEORGE L. BATES, M.D., Morrisville, Vt.

ANSWER:—The following are a few of the many articles on this subject:

Beck, E. G.: Fistulous Tracts, Tuberculous Sinuses and Abscess Cavities. THE JOURNAL, March 14, 1908, p. 868.

Harris, H. H.: Bismuth-Vaselin Paste Injections, *Lancet-Clinic*, Sept. 26, 1908.

Discussion on Bismuth Treatment of Tuberculous Sinuses at meeting of American Orthopedic Association, reported in THE JOURNAL, July 25, 1908, p. 342.

Beck, J.: Bismuth Paste in Treatment of Suppuration of the Ear, Nose and Throat, THE JOURNAL, Jan. 9, 1909.

Swindt, J. K.: Bismuth Paste Diagnosis and Treatment of Fistulous Tracts. *South. California Pract.*, January, 1909.

Robitschek, E. E.: Beck's Bismuth Paste Treatment, with Report of Nine Cases, *Jour. Minn. Med. Assn.*, Feb. 15, 1909.

David, V. C. and Kauffman, J. R.: Bismuth Poisoning Following Injection of Bismuth-Vaselin Paste, THE JOURNAL, March 27, 1909, p. 1035.

Baccus, Y. J.: Bismuth Poisoning, THE JOURNAL, April 17, 1909, p. 1273.

Stern, W. G.: Bismuth Injections for Treating Old and Secreting Fistulas, *Cleveland Med. Jour.*, April, 1909.

Ridlon, J., and Blanchard, W.: Bismuth Paste Treatment of Tuberculous Sinuses, paper read before American Orthopedic Association; abstr. in THE JOURNAL, Aug. 7, 1909, p. 478.

Baer, W. S.: Results of the Injection of Beck's Bismuth Paste in Treatment of Tuberculous Sinuses, *Bull. Johns Hopkins Hosp.*, October, 1909.

Anderson, A. R.: Poisoning by Bismuth Subnitrate in Bismuth Paste, *West. Med. Rev.*, January, 1910.

Shober, J. S.: Treatment of Tuberculous Sinuses by Beck's Bismuth-Vaselin Paste Injections, *Ann. Surg.*, May, 1910.

LIST OF PRIZES OPEN TO COMPETITION

To the Editor:—A list of prizes to be competed for by physicians during the next twelve months would doubtless prove of interest to those of your readers who are carrying on investigations.

PHYSICIAN.

ANSWER:—We gave a list of prizes in THE JOURNAL, Feb. 19, 1910, page 636. We did our best to make that list as complete as possible and since we specified which prizes are for annual award, the list ought to be still good for reference. Competition is not in all cases limited to physicians.

The Public Service

Medical Department, U. S. Army

Changes for the week ended October 1, 1910.

Wheate, J. M., M.R.C. Sept. 19, ordered to proceed from Fort Lincoln, N. D., to Fort Yellowstone, Wyoming, for temporary duty.

Marshall, John S., E.S. and D.S., Sept. 20, reports on three months leave of absence.

Pyles, Will L., capt., Sept. 23., on expiration of his present leave of absence, ordered to Fort Mackenzie, Wyoming, for duty.

O'Connor, R. P., major, Sept. 23, granted 5 days leave of absence.

McCord, Donald P., M.R.C., Sept. 23, granted 3 months leave of absence about Oct. 1, 1910.

McIntyre, Henry B., capt., Sept. 23, granted leave of absence from date of his relief from duty in San Francisco, to and including Oct. 25, 1910.

Heffenger, A. C., C.S., Sept. 24, granted 14 days leave of absence.

Flidd, Peter C., capt., Sept. 26, left Fort Slocum, N. Y., with recruits en route to Fort McDowell, California.

The following-named first lieutenants, Medical Reserve Corps, will report Oct. 1, 1910, to Col. Louis A. La Garde, Medical Corps, President, Army Medical School, for a course of instruction at that school: Robert H. Gantt, Henry P. Carter, Francis X. Strong, Harley J. Hallett.

Slater, Ernest F., M.R.C., Sept. 24, is honorably discharged from the service of the United States, to take effect Oct. 13, 1910, his services being no longer required.

Weed, Mark D., lieut., Sept. 24, ordered to proceed to West Point, N. Y., for temporary duty.

La Garde, Louis A., colonel, Crosby, Wm. D., lieut.-col., and Keefer, Frank R., lieut.-col., Sept. 24, 1910, appointed members of a board for the examination of medical officers for promotion.

Bailey, Edward, M.R.C., Sept. 24, relieved from duty at Fort George Wright, Washington, and report in person to the Med. supt., Army Trans. Service, at that place, for duty, with station at Seattle, Washington, relieving 1st Lieut. James E. Maloney, M.R.C., from duty on the transport *Burnside*.

Maloney, James E., M.R.C., Sept. 24, will, on being relieved from duty on the trans. *Burnside*, proceed to Fort George Wright, Washington, for duty.

Lamb, Wm. P., M.R.C., Sept. 27, 1910, honorably discharged from the service of the United States, his services being no longer required.

Roberts, Ernest E., M.R.C., Sept. 16, ordered to accompany Battery C, First Field Artillery from Fort Sill, Oklahoma, to San Francisco.

Davis, A. O., lieut., Sept. 27, left Fort Oglethorpe, Georgia, with 11th Cavalry on 21 days practice march.

Wheate, J. M., M.R.C., Sept. 27, left Fort Lincoln, N. D., en route to Fort Yellowstone, Wyoming, for temp. duty.

Griffin, F. C., M.R.C., Sept. 20, left Fort D. A. Russell, Wyoming, with the 9th Cavalry on practice march.

Trinder, John H., M.R.C., Sept. 28, orders directing him to report on Oct. 1, 1910, at Army Med. School, Wash., D. C., for a course of instruction at that school, revoked.

Willcox, Charles, major, Sept. 28, order to report at Washington, D. C., for examination for promotion on Oct. 18, 1910.

Bastion, Joseph E., lieut., Sept. 28, granted 30 days leave of absence.

Kieruff, H. Newton, M.R.C., Sept. 28, 1910, is honorably discharged from the service of the United States, to take effect Oct. 29, 1910, his services being no longer required.

Carswell, R. L., capt., Sept. 29, relieved from duty at the Army General Hospital, San Francisco, ordered to Manila, P. I., for assignment to duty on the transport sailing from San Francisco, December 5, 1910.

Miltenberger, Val E., M.R.C., Sept. 29, relieved from duty at Fort Riley, Kansas, and ordered to Manila, P. I., for assignment to duty on transport sailing from San Francisco, Dec. 5, 1910.

Barney, F. M., M.R.C., Sept. 29, relieved from duty at Fort Clark, Texas, and will proceed home. Lieut. Barney is relieved from active duty in the M.R.C., to take effect on the expiration of leave of absence granted him this date, for one month and seven days.

De Witt, Wallace, major, Sept. 29, relieved from duty at Fort Yellowstone, Wyoming, and ordered to Schofield Bks., H. T., for duty.

Leslie, S. H., D.S., Sept. 23, ordered to proceed from Fort Leavenworth, Kansas, to Fort Meade, S. D., Robinson, Nebraska, and Fort Mackenzie, Wyoming, for temporary duty.

Medical Corps, U. S. Navy

Changes during the week ended Oct. 1, 1910.

Wentworth, A. R., medical inspector, detached from the Naval Academy and ordered to the navy yard, New York.

Lung, G. A., surgeon, detached from the navy yard, New York, and ordered to duty on board the *Connecticut* as fleet surgeon of the Atlantic fleet.

McCormick, A. M., surgeon, detached from duty on board the *Connecticut* as fleet surgeon of the Atlantic fleet and ordered to the Naval Academy.

Hayden, R., P. A. surgeon, detached from the naval proving ground, Indian Head, Md., and ordered to duty at the naval hospital, Norfolk, Va.

Straeten, R. J., P. A. surgeon, detached from the Naval Medical School Hospital, Washington, D. C., and ordered to the naval proving ground, Indian Head, Md.

Lane, H. L., surgeon, detached from the naval station, Hawaii, and ordered to duty at the naval hospital, Canacao, P. I.

Acting Assistant Surgeons E. E. Woodland, R. B. Pratt, A. L. Jacoby, J. J. Lynch, O. J. Miller, W. H. Halsey, W. E. Eaton, L. L. Pratt, C. F. Hightower, J. V. Howard, J. G. Omelveny and E. P. Halton, ordered to instruction at the Naval Medical School, Washington, D. C.

Grow, E. J., surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the *Solace*.

Hennig, W. H., P. A. surgeon, ordered to duty at the naval hospital, Annapolis, Md.

Baker, M. W., P. A. surgeon, detached from the *Connecticut* and ordered home to wait orders.

Steadman, W. G., P. A. surgeon, detached from the naval recruiting station, Hartford, Conn., and ordered to the *Dixie*.

Smith, H. W., P. A. surgeon, detached from the Naval Academy and ordered to the *Connecticut*.

Stuart, M. A., P. A. surgeon, commissioned passed assistant surgeon from May 4, 1910.

Curtis, E. E., P. A. surgeon, commissioned passed assistant surgeon from July 12, 1910.

Hormesch, H. R., P. A. surgeon, detached from duty at Knoxville, Tenn., and ordered to the naval recruiting station, Minneapolis.

Trible, G. B., asst.-surgeon, ordered to duty at the naval hospital, Norfolk, Va.

Olson, G. M., asst.-surgeon, detached from the naval recruiting station, Minneapolis, and directed to wait orders.

Lynch, J. J., acting asst.-surgeon, resignation accepted to take effect Oct. 1, 1910.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Sept. 28, 1910:

Williams, L. L., surgeon, leave of absence for 7 days from Sept. 19, 1910, amended to read 3 days.

Gardner, C. H., surgeon, leave of absence for 1 month from Sept. 1, 1910, amended to read 22 days from Sept. 1, 1910.

Sprague, E. K., surgeon, granted 1 month's leave of absence from Sept. 28, 1910.

Rucker, W. C., P. A. surgeon, relieved from duty in connection with the suppression of plague in California, and detailed for temporary duty in the Bureau, effective Sept. 22, 1910.

Creel, R. H., P. A. surgeon, detached from U. S. R. C., *Tahoma*, and ordered on shore duty at Unalaska, as fleet surgeon, Aug. 9, 1910.

Guthrie, M. C., P. A. surgeon, granted 1 month's leave of absence from Oct. 1, 1910.

Hunt, Reid, Professor, Chief Division of Pharmacology, Hygienic Laboratory. Detailed to attend the Second International Conference for the Study of Cancer to be held in Paris, Oct. 1-5, 1910, and the Conference of the International Antituberculosis Association to be held in Brussels, Oct. 5-8, 1910.

Porter, Joseph Y., Quarantine Inspector, granted 30 days' leave of absence from Sept. 20, 1910.

Barnes, W., acting asst.-surgeon, granted 30 days' leave of absence from Oct. 5, 1910, with pay, and 1 month's leave of absence from Nov. 5, 1910, without pay.

Clark, E. S., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 13, 1910.

Cleborne, A. B., acting asst.-surgeon, granted 7 days' leave of absence from Sept. 24, 1910. Paragraph 210 Service Regulations.

Gill, S. G., acting asst.-surgeon, granted 1 day's leave of absence Sept. 17, 1910. Paragraph 210 Service Regulations.

Kimmet, W. A., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 25, 1910.

Rush, John O., acting asst.-surgeon, granted 10 days' leave of absence from Sept. 24, 1910, without pay.

Schuster, B. L., acting asst.-surgeon, granted 1 day's leave of absence Sept. 10, 1910.

Stuart, A. F., acting asst.-surgeon, granted 30 days' leave of absence from Oct. 1, 1910.

Wakefield, H. C., acting asst.-surgeon, granted 14 days' leave of absence from Oct. 10, 1910.

Society Proceedings

COMING MEETINGS

Am. Ass'n. for Study and Prev. Infant Mort., Baltimore, Nov. 9-11.
American Association of Railway Surgeons, Chicago, October 19-21.
Colorado State Med. Soc., Colorado Springs, October 11.
Delaware State Med. Soc., Wilmington, October 11.
Hawaiian Territorial Med. Assn., Honolulu, November 26-28.
Medical Association of the Southwest, Wichita, Kan., Oct. 11-12.
Ohio Valley Med. Assn., Evansville, Ind., Nov. 9-10.
Southern Medical Assn., Nashville, November 8-10.
Vermont State Medical Society, St. Albans, October 13-14.
Virginia, Medical Society of, Norfolk, October 25-28.

KENTUCKY STATE MEDICAL ASSOCIATION

Fifty-fifth Annual Meeting, held at Lexington, Sept. 27-29, 1910

The President, DR. JOSEPH E. WELLS, Cynthiana, in the Chair

Diagnostic Significance of Headache to the Internist

DR. J. W. KINCAID, Catlettsburg: Pain is a subjective symptom and headache is an attack of diffuse pain, affecting different parts of the head and not confined to a particular nerve. Headaches must be considered in connection with the patient's personal and family history, and this should be obtained as a matter of routine, like making a physical examination. The number of lives sacrificed, owing to cerebral syphilis and nephritis untreated, except by "patent medicines" and headache tablets, until the crisis comes like a thunderclap out of a clear sky, will never be known. History of migraine or epilepsy is very suggestive; as is also a previous history of a weak nervous system. One should never fail to inquire about a former luetic infection and also regarding the use of alcohol and drugs. The duration of the headache, its periodicity, the character of the ache, and accompanying symptoms during an attack and the presence of cardiac pulmonary, renal or gastro-intestinal systems must be investigated. Another point is the hour that the headache occurs.

In the physical examination the first point is to exclude the neuralgia and migraine. Neuralgic pain is distinguished by

sharp pain referred to certain points along the course of the nerve with sensitiveness of the epicranial structures to which these nerves are distributed. The patient will often state that the pain is relieved by hot applications.

Examination of the urine is most important, headache being a frequent early symptom of nephritis; the headaches of uremia are easy to diagnose. Nephritic headaches are often associated with symptoms of arteriosclerosis, with the addition of nausea, vomiting and possibly somnolence. Headache in the pregnant woman should excite suspicion at once and demands an immediate examination of the urine. It is often a premonitory symptom of an approaching eclampsia, which may be forestalled by vigorous eliminative treatment.

Examination of the nervous system is, perhaps, the most important of all. Collins says that 40 per cent. or more of all headaches are due to neurasthenia. Headache is of common occurrence in the early stages of infectious diseases. As an initial symptom of typhoid it is often so severe and persistent as to demand opiates for its relief.

Diagnostic Significance of Headache to the Surgeon

DR. A. DAVID WILLMOTH, Louisville: In headache we are called on to minister to one of three conditions, the aim of all surgery: to relieve suffering, to restore function and to save life. Every case of frequently recurring headache calls for very careful and painstaking examination, not only of every organ in the body, but of the urine, blood and blood-pressure as well. The reflexes, sensations and other nervous functions must be tested out either by the surgeon himself, or, better, by a competent neurologist. An accurate history should be obtained and a continued series of observations made, this being necessitated by the loss of memory that frequently accompanies headache. Surgical headaches may be divided into two classes as regards cause: those in which the pathology is located in the brain, membranes, skull or scalp; and those in which the lesion is located elsewhere in the body and the head symptoms are secondary, the so-called reflex headaches. Headaches must also be classified as to the character of pain experienced by the patient, and, last, they must be divided as to their location on the head.

Patients recognize five kinds of pain: (1) Pulsating and throbbing; (2) dull and burning; (3) constricting, squeezing and pressing; (4) hot and burning; (5) sharp and boring. Under the first head come the vasomotor troubles, such as migraine; to the second belongs the toxic and dyspeptic headache; to the third the neurotic; to the fourth the rheumatic and the anemic, and to the fifth the hysterical and epileptic.

The pain may be frontal, occipital, parietal, vertical, diffuse, or combinations of any of these. Localized pain, with tenderness on pressure, suggests strongly that the pathology is superficial, and that the bones or membranes are affected. If all the branches of the fifth nerve are affected, it is strong presumptive evidence that the trouble is intracranial, while, when only one branch is affected, it is generally extracranial. If headache be accompanied by epileptiform phenomena, disturbances of speech and facial paralysis, at or near the period of adolescence, we probably have to do with organic disease. The correctness of the diagnosis is enhanced if there is vomiting and inability to retain food, in the absence of gastric symptoms, and certainly if the vomiting is projectile in character. The following points of significance should be attached to vomiting due to organic brain disease: (1) the influence of the position of the head, the vomiting being frequently arrested in the horizontal and recurring in the erect position; (2) the absence of premonitory nausea; (3) the peculiar character of the vomiting, the contents being ejected without strain of retching, just as in babies at the breast; (4) the irregularity of the radial and cardiac pulse which will be augmented by the vomiting. It may be said, however, that vomiting is only to be looked for in the early stages.

In organic disease the pain is generally constant; there are rarely periods of perfect freedom. At times the patient will shriek from the suffering. This may be said of migraine, but in migraine the paroxysms are separated by days or weeks of freedom, comparative or complete. The pain of organic disease persists during the night, preventing sleep or arousing the sufferer. Functional headaches rarely prevent sleep, which indeed often ends the attack. If sleeplessness is a symptom, optic neuritis, vertigo and vomiting should be looked for. If the three constitutional states, marked anemia, kidney disease and lead poisoning can be excluded, optic neuritis with headache is almost pathognomonic of organic disease. Much can be done for patients with headaches found by exclusion to be entirely surgical. If due to adhesions, or any of the conditions not cancerous, relief can be promised. I have found that, if the brain is dealt with gently, it lends itself kindly to almost any amount of handling.

The Diagnostic Significance of Headache to the Specialist in Eye, Ear, Nose and Throat

DR. M. C. DUNN, Henderson: The two most important facts to keep in mind in endeavoring to interpret the significance of headache are, first, that it is an important symptom of a number of functional and organic diseases; and second, that the location, character and duration of the pains are often the means of suggesting the condition or disease on which it depends. We have much yet to learn respecting headache and the remote effect of a disturbed nervous equilibrium on the organs of the chest and abdomen. We also have much to unlearn, many inherent prejudices to overcome and many clinical conclusions to discard before our patients can derive the full benefit of our own advancement.

Discussion on Headaches

DR. D. M. GRIFFITH, Owensboro: Eyestrain as a cause of headache is now universally accepted by the profession, but the credit of intelligently and persistently bringing the subject before the profession is largely due to S. Weir Mitchell. In persistent headache in a patient under 40 in whom there is no assignable cause, the refraction and muscular balance of the eye should be carefully inquired into by a competent oculist and with the use of a cycloplegic. In my experience the small errors of refraction are those that produce the reflex we call headache, because Nature keeps up a persistent effort to overcome this small error in order to secure good vision, while with a large error she abandons herself to poor vision and secures thereby freedom from the nerve strain. In chronic simple glaucoma, pains may be the only symptom recognized except at the hands of those of considerable experience; and I would admonish the general practitioner not to use cycloplegics in these cases, as the result is always disastrous. I have found that the most frequent cause of one-sided headache is the nose or the accessory sinuses; and in this order of frequency with the sinuses—the frontal, ethmoidal, sphenoidal and lastly maxillary. Many of the worst headaches come from pressure in the middle turbinate region, and I have given relief to many patients by operations which secured relief of pressure. Contrary to the general opinion, diseased tonsils may be the cause of headache, as proved by several of my own cases during the past year. A school teacher, who had suffered from headaches for three years, was given complete relief by removal of the tonsils in their capsule.

DR. J. D. KISER, Lexington: In a case of periodical pain, which may involve any region, if the headache is one sided, it may be due to trouble with the frontal and sphenoidal sinuses. If the sphenoidal sinus is involved, it is deep seated, going back toward the attic to the head, and often the removal of the middle turbinate will relieve the troubles. In these cases it is essential to secure free drainage. There may be blocking of the ostium, with obstruction to ventilation, the condition being brought about by a swollen condition of the membrane. In case of sphenoidal involvement, a condition may develop in the sphenoidal sinus which will undermine the sella turcica; and pressure on the optic nerve may produce blindness. From an ophthalmologic standpoint, there is temporal, frontal and occipital pain or discomfort extending into the neck, and sometimes down into the shoulders themselves, indicating eyestrain or asthenopia. It may be due to muscular imbalance, to retinal asthenopia, or if due to muscular imbalance the internal muscles may lack the power of con-

vergence. Especially is this the case when there is hypermetropic astigmatism due to failure of the ciliary muscle to act in adjusting the accommodation. The majority of these patients can be absolutely cured or greatly benefited by correcting the refractive error and adjusting properly fitted glasses.

DR. F. H. CLARK, Lexington: I believe that toxemia is the largest of any one cause of headache, but more than one cause is involved in the production of headaches. These toxemias are of two general types, like lead poisoning and acid intoxication, due to a defective liver or kidneys. In many so-called neurasthenics, I believe that the headaches are modifications of migraine.

DR. CURRAN POPE, Louisville: If headache is a symptom and symptomatic, how can we come to a conclusion about headache, unless we, like the jury, are in possession of all the facts? No practitioner has a right to diagnose headache until he first possesses all the facts in any given case. The history of syphilis may be the most unreliable that was ever given. Do not believe it. Do not accept it. You are given scientific methods of approximating an accurate diagnosis through the methods of Wassermann and Noguchi. I do not accept the question of specific headache unless it is based on the serum diagnosis. A headache may disappear when the patient's mental attitude is corrected, without the use of either hypnotism or suggestion. In my opinion, the question of eyestrain, of the various other reflexes arising from the sinuses and otherwise, occupies a very definite, clear, well-defined position. If a condition exists, correct it. My principle has always been to refer these patients to some good specialist, in order that the causal condition may be removed if it really exists. The principal thing is to lift any burden from the individual, and it is only by eliminating one after the other of the possible causes and getting down deep into the question of headache that we will cure these patients. I am not speaking of organic lesions, which are questions for diagnosis and operative work, if possible.

DR. JOHN J. MOREN, Louisville: I want to go on record as saying that true migraine has never been cured by properly fitting glasses. The number of attacks may be lessened and the amount of pain influenced, but these true cases of migraine are never stopped. That has been my experience. My method it to try to distinguish, if I can, the character of the pain. In a patient with pain over the fifth nerve, a true darting, actual pain, the location of the pain being very definite, what is causing it? Is it something in the blood? Is it something irritating the nerve? That should be our line of thought. If an individual complains not of headache, but of the sensation of having a band around the head, or a sensation of weight, it is not a pain, but a sensation, and that will give a clew in looking for hysteria or neurasthenia so called. Look for eyestrain. Look out for various reflex causes. I would emphasize the importance of studying the character of the pain, and there is nothing that will help us more in this than the location of pain.

DR. J. A. STUCKY, Lexington: It is evident that this great bugbear which confronts the medical profession, headache, is not clearly understood, and that after all the diagnosis must be made by elimination. Undoubtedly, toxemia is the basis of the majority of cases of headache. But what causes the toxemia? It may be intestinal. It may be due to trouble in the accessory sinuses. If the sinuses are involved, how does that produce toxemia? Not by production of pus. When the sinuses begin to suppurate, the headaches begin to get easy. It is the negative pressure; it is the rarefication in the anterior ethmoid cells, in the sphenoidal sinus, in the frontal sinus, and it is necessary to relieve the negative pressure before opening the sinuses. How do refractive errors produce headache and toxemia? By lowering vitality, lowering the power of resistance. I can take a little cotton and give any of you toxemia in twenty-four hours by blocking up the attic of the nose. There is pain as the toxins result from retained secretions. Retained secretions become pus or purulent after a while. We should bear in mind the possibility always of intracranial complications.

(To be continued)

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Twenty-third Annual Meeting, held at Syracuse, N. Y., Sept. 20-22, 1910

The President, DR. AARON B. MILLER, Syracuse, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Herman E. Hayd, Buffalo; vice-presidents, Drs. Henry Schwarz, St. Louis, and Lewis C. Morris, Birmingham, Ala.; secretary, Dr. William Potter, Buffalo (re-elected); treasurer, Dr. X. O. Werder, Pittsburg, Pa. (re-elected).

Louisville, Ky., was selected as the place for holding the next annual meeting; time, Sept. 25-27, 1911.

The President's Address: Gynecology

DR. AARON B. MILLER, Syracuse, N. Y., after speaking of the recent advances that have been made in obstetrics, gynecology and abdominal surgery, said in part: The scope of work of the members of this Association has gradually increased since the knowledge of bacteriology has illumined the way to a more accurate diagnosis and given us a known pathology. In 1882, Dr. J. Marion Sims made the prophetic statement that it would become possible to open the abdomen in gunshot and stab wounds, to repair and thereby lessen the mortality attending these injuries. In the master mind of Sims the seeds of advancement had taken lodgment. His observations and associations abroad had given him an oversight into the possibilities of the future, the possibility of surgery becoming a science, founded on findings that were indisputable. With the advent of bacteriology came a new school of surgeons, whose knowledge was founded on facts, not theories, and like the mariner who consults his compass, had known laws to direct them. The field of gynecology, the pelvis, with the abdomen appended, was their hunting ground, and like an army marching to victory, the field was soon taken. Now all the organs of abdomen and pelvis have felt the results of advancement and have yielded of their pathology abundantly. The knowledge of the real etiology of disease robbed surgery of its terrors and opened the pelvic and abdominal fields for investigation through a perfected technic, with but little fear of serious consequences attending thorough exploration, thereby revealing the living pathology and rendering the arrest or elimination of disease possible. In obstetrics, marked results have been obtained through a knowledge of infection. From a heavy death-rate following confinement, the technic carried out in hospital practice has almost eliminated the mortality.

In the field of gynecology, the disease that stands as a lone sentinel against the advancement of science is cancer. Having existed since the earliest history of medicine, it has withstood all investigation. While all forms of maladies have crumbled in ruins about it, it has continued its ravages until many thousands of people in the United States are dying annually of this disease. Cancer of the breast, recognized and treated in its inception by early operation, has resulted in a greater percentage of cures, and materially lessened the mortality. It is the consensus of opinion that cancer of the stomach has its origin on the site of an ulcer. Prophylactic treatment prevents the cancer by curing the ulcer. Prophylaxis must be introduced in the prevention of cancer of the uterus by early repair of lacerations. Traumatism is the accepted factor in inducing cancer of the breast.

Gynecologists have been slow to impress on the public, and to enlighten women especially, as to the great dangers that threaten them through ignorance of venereal diseases that are liable to be brought to them by unsuspected avenues. This subject has been enshrouded in such mystery that boys and girls have grown to mature manhood and womanhood, ignorant of the laws that should govern their lives, for fear that the knowledge of sexual diseases might lead to contamination. Proper environment should be placed about the growing child to aid in development and to protect when dangers threatens, thereby promoting stronger, healthier bodies.

Present Status of the Colon Tube

DR. H. WELLINGTON YATES, Detroit: Seldom, if ever, are soft rubber tubes admitted into the normal colon. When an endeavor is made to force the tube upward, even by the gentlest manipulations, it is found to coil itself up in the rectum and there do positive harm, because of pressure irritation and the consequent inability to retain the enema. In perhaps half the instances it is impossible to tell when the tube is coiling up on itself, even when we suspect it. Colon tubes as such are of no value, because they do not reach the colon, and they are mischievous in that proportion as we endeavor to force them high up. Water or fluid injected four or five inches into the rectum is carried upward into the colon and may be found at the cecum in ten minutes. There is good reason to believe that a reversed peristalsis is set up when fluids are injected into the rectum. The introduction of a tube more than five inches for colonic irrigation or therapeutic enemata is useless and likely to defeat the object desired.

DISCUSSION

DR. L. S. MCMURTRY, Louisville, Ky.: It has been discovered that what we formerly called high enemata were not high enemata; that if we introduced a soft rectal tube into the bowel and kept on passing and passing the tube it reached to the sigmoid and then began to coil on itself and did not pass into the bowel. Years ago, therefore, I abandoned all efforts at what is known as high enemata, recognizing that it was a deception. It seems that this has an important bearing on some important features of treatment of the colon, especially ulcerative conditions. For instance, if the cecum be opened the colon can be irrigated from below or above, but if there is no opening in the caput coli it is almost impossible, no matter what position the patient is in, to get water up into the transverse and ascending colon, but if an opening is there and water is thrown in the gas will pass out of the opening in the cecum. An opening also provides a means of medicating the entire mucous surface of the colon, but without such an opening it is impossible to do it.

DR. J. G. SHERRILL, Louisville, Ky.: It has been demonstrated by Dr. Hanes that fluids pass with difficulty into the colon and cecum because of the amount of gas found in this portion of the bowel, and that if an opening be made in the cecum or appendix the gas will pass out and fluid will go in. Dr. Hanes uses coal oil in the treatment of amebic dysentery with gratifying results.

DR. LOUIS FRANK, Louisville, Ky.: I wish to emphasize the therapeutic value of injections of fluids for medication in high bowel lesions by the use of the inverted posture.

DR. FRANCIS REDER, St. Louis: Dr. Soper and I have done considerable work in the field of rectal inflation and the injection of water into the lower bowel, endeavoring to get it as high up as possible, and we found that if we took an ordinary colon tube and introduced it into the bowel it was impossible to get above the promontory of the sacrum. The ordinary soft tubes coil on themselves and the fluids injected do not reach beyond what is called the shelf of the rectum.

DR. W. YATES, Detroit: The purpose of my paper was to show the possibility of not only medicating the rectum, but the sigmoid and colon with fluids.

Diagnosis of Chronic Surgical Lesions in the Upper Abdomen

DR. C. N. SMITH, Toledo, O.: The diagnosis of these lesions is made with accuracy by the anamnesis alone. Differentiation of cholelithiasis from ulcer demands recognition of the initial symptoms which are frequently overlooked. The accepted symptomatology of cholelithiasis and ulcer is largely that of their terminal events. The most striking feature of ulcer is periodicity of painful attacks, alternating with intervals of relief. As complications occur, the attacks are more severe, becoming nearly continuous. In cholelithiasis, the stomach distress, compared with the pain of ulcer, is of much less intensity, occurs sooner after the taking of food, is the pain of a full stomach and does not progressively increase and reach its height in from two to five hours after meals. In cancer of the stomach, generally a sequence of ulcer, symptoms of the latter gradually merge into those of the former. Vomiting may or may not be a dependable symptom in cancer; anemia is a most important symptom. Chronic pancreatitis being largely a terminal event in cholelithiasis, the diagnosis of the former is facilitated by recognizing the initial symptoms of the latter. Valuable pancreatic symptoms are found in the feces. Chemical and microscopic examinations are necessary. The Cammidge reaction is of questionable value. In movable kidney during Dittl's crises, the swollen and tender kidney, especially when jaundice is present, may be mistaken for an inflamed and distended gall-bladder. Differentiation is made from appendicitis, rupture of the gall-bladder and renal colic. The appendix may mimic successfully many of these lesions.

DISCUSSION

DR. R. T. MORRIS, New York: We cannot always make a diagnosis of the presence of gall-stones. We should not fall into the trap of speaking of cholelithiasis. We should not make that diagnosis. It is a dangerous thing. We should speak of cholecystitis, as the gall-stones are merely incidental to cholecystitis.

DR. J. PRICE, Philadelphia: If the internists made diagnoses in these cases early and referred them to surgeons for operation promptly, many more lives could be saved than are now saved.

DR. R. E. SKEEL, Cleveland: If one wishes to secure as complete and certain a history as is necessary to make a diagnosis in the class of cases under discussion, unusually intelligent patients must be met with, but I do not see any possibility of the average patient giving such an accurate history of his case as will lead the surgeon to make a diagnosis from that alone.

Problems in Uterine Cancer

DR. WALTER B. CHASE, Brooklyn: In the present state of our knowledge, early extirpation of the uterus offers the best chance of cure. Where there is considerable involvement of the vaginal structures, the first indication is high amputation of the cervix and removal of the vaginal involvement. If the uterine stump does not heal hysterectomy should usually be undertaken, providing there is normal mobility of the uterine body. Vaginal hysterectomy subsequent to cervical amputation is difficult if not impracticable; fixation of the uterus, if not dependent on other coexisting causes, contraindicates hysterectomy. If the parametria are involved radical measures are contraindicated. When subsequent to the removal of the cervix and the vaginal growth hysterectomy is expedient, the abdominal route should be chosen, because vaginal hysterectomy is neither easy nor practicable and because there should be as little interference as possible with the remaining cicatrix. The value of hysterectomy for cancer of the body of the uterus as a secondary operation, though not recognized by the average practitioner, has a value which cannot be gainsaid in a certain class of cases. I object to the palliative treatment of uterine cancer by potent escharotics, both on account of the inability to limit the area of their destructive influences, and the violent pain attending their application. The thermocautery is the palliative measure *par excellence*. The electric cautery leaves nothing to be desired, but if one is under the necessity of using a Paquelin cautery, which is practically as satisfactory, it is hazardous to attempt the operation with a single apparatus. A variety of straight and curved platinum knives and home-shaped instruments are needful. For securing the best results, care is needed in protecting the vaginal walls from excessive heat and skill in removing all diseased structures compatible with the anatomic relations of the healthy and diseased structure. My results from the use of the thermocautery have been satisfactory. The modus operandi seems to be, first, it has the power to destroy or inhibit specific germs beyond the area of actual destruction of tissue; second, it closes the lymphatics, thereby limiting absorption; third, it promotes healing, diminishing hemorrhage and purulent discharges; fourth, when the destruction of malignant growth extends to normal structure, it facilitates the advent of healthy cicatrization; fifth, by

following the use of the cautery, by daily gentle irrigation with an antiseptic of not more than one dram to a quart, always avoiding peroxid of hydrogen, and dressing with antiseptic gauze, the suffering is greatly lessened and sometimes almost wanting, until the inevitable end; sixth, well authenticated cures have followed this treatment, in which no expectation of cure was suggested.

Such information should be disseminated among women as would teach them the necessity of seeking assistance early in cancer. Public interest should be awakened among philanthropic men and women, in order that as much may be done for cancer patients as has been done for those suffering from tuberculosis, and that facilities may be provided for the care of the numerous patients with uterine cancer who are without financial resources.

Statistics of Cancer in the Female

DR. K. I. SANES, Pittsburg, Pa.: This paper is based on statistical data collected from the latest 8 annual reports of the Bureau of the Census and the latest reports of 219 hospitals. The figures show that the proportion of deaths from cancer to the total number of deaths from all causes are in females, 1 to 17.7; in males, 1 to 33.4; the proportion of deaths from cancer in the past 35 years, to the total number of deaths in the same period, are, in females, 1 to 9.8; in males, 1 to 18.5. Taking the relative frequency of cancer in both sexes, it is found that according to the mortality statistics of the United States Bureau of Census, 62 per cent. of those that died of cancer are females and 38 per cent. males; according to the hospital statistics, 66.5 per cent. are females and 33.5 per cent. males. We see then that cancer is an exceedingly common disease in the female and is seen about twice as frequently in females as in males. Whether based on mortality figures or on population figures, there is clearly shown an increase in cancer from 1900 to 1908. In the 8 years there was an increase in cancer mortality from 1 in 22.8 deaths to 1 in 16.6 deaths, or from 63 per 100,000 population to 74.3. The question is frequently raised whether the gradual increase in mortality is not due to changes in the methods of reporting deaths and to the greater accuracy in the diagnosis of cancer, especially in view of the slight variation for the 5 years between 1903 to 1907. Hospital statistics, if carefully and properly compiled, can be utilized to great advantage by the profession in many ways. The modern hospital organization and facilities, the gradual increase of the number of hospitals all over the country, the more general use of the hospitals by the sick, the greater readiness by the profession and patients to adopt surgical measures for surgical diseases—all this makes the hospital the most valuable source of statistical medical information. But to get accurate information, not only must each hospital have a careful conscientious statistician, but the visiting members of the hospital staff must see that their diagnoses are carefully reported in the hospital records.

Discussion on Cancer

DR. W. H. HUMISTON, Cleveland: I have had but five cases of the so-called inoperable cancer of the uterus, and in these I resorted to the Wertheim operation, making a very wide dissection. Four of these patients are still living.

DR. R. WALDO, New York: A decided advance has been made in operative work for the treatment of cancer of the uterus. I believe to-day that almost any one, who is competent to pass judgment, will advise a radical operation on any woman 45 or 50 years old, who has a persistent hemorrhage from the uterus, unless there is a polypus or something of that kind which he can thoroughly demonstrate is the cause of the hemorrhage. Occasionally a uterus will be removed at that age which is not cancerous, but many more uteri will be taken out that are the seat of incipient carcinoma. Generally I prefer the vaginal route in operating in these cases.

DR. M. I. ROSENTHAL, Fort Wayne, Ind.: The early symptoms of cancer of the uterus are hemorrhage and discharge, and when we get a case of cancer of the uterus early it is a pure accident. The only saving point we have is the fact that some carcinomata are less malignant than others, or some are more malignant than others, and when we are dealing with carcinoma of the fundus of the uterus we are ordinarily dealing with a carcinoma that is less malignant, and a destructive operation through the vagina in such a case is uncalled for. When we are dealing with carcinoma of the portio vaginalis we are dealing with that form of cancer which is not so malignant. In such cases, ordinary hysterectomy done with cautery will give as good results as any other method. When we are dealing with carcinoma of the portio uteri, which begins in the endometrium higher up, we are dealing with a serious malignant growth in which practically no operation will do good. I have done the Wertheim operation, and reported fifty-seven cases in the *New York Medical Journal* some years ago, with good results in that class of cases.

DR. J. H. CARSTENS, Detroit: I agree with Dr. Rosenthal and Dr. Waldo that it is largely a question of early diagnosis. When a woman has cancer which is so far advanced that the lymphatics and other structures are involved, it is better to let her alone and trust to the *vis medicatrix naturæ*.

DR. T. B. NOBLE, Indianapolis: I look on cancer of the cervix or of the uterus as an analogue to carcinoma of the breast. It should be so considered and diagnosticated, and decidedly so with regard to treatment.

DR. J. PRICE, Philadelphia: I look on the vaginal operation as one of the simplest in surgery, but in operating for the removal of carcinoma of the uterus, in which adjacent structures are involved, and wide and deep dissection is necessary, it is better to operate through the abdomen.

DR. F. REDER, St. Louis: The whole question resolves itself into early diagnosis, skilled operative measures, and education of patients.

DR. E. J. ILL, Newark, N. J.: In operating for cancer of the uterus no surgeon can open up an extensive area of cellular tissue without spreading the cancer cells. The safest operation in cervical carcinoma is to start from above, separate all adhesions, separate all attachments to the uterus and to its surroundings, and then go from below and lift the mass right out and cut it off with a cautery, as has been suggested by Werder.

Treatment of Intestinal Obstruction Due to Malignant Neoplasm

DR. M. I. ROSENTHAL, Fort Wayne, Ind.: The general results from operations for cancer of the bowel, as shown by a review of 328 cases from the literature, are as follows:

1. Obstruction of the bowels due to carcinoma is not hopeless as to cure by radical operation. Incomplete excision of all cancerous tissue must necessarily result in recurrence of the growth.
2. Anastomosis without resection of the malignant growth should be the operation of election in obstruction due to cancer, when the radical operation, that is complete excision, is impossible.
3. Anastomosis without resection low in the pelvis, when the bowel is accessible with difficulty, can be successfully accomplished by the assistance of the Murphy button.
4. Anastomosis without resection probably bears the same relation to cancer of the bowel as does gastroenterostomy to cancer of the pylorus.
5. The clamp and suture method of bowel anastomosis is practical, rapid and trustworthy, and applicable in a large variety of bowel cases requiring resection or anastomosis.

Diagnosis of Tubal Abortion and Rupture

DR. C. E. CONGDON, Buffalo: The general indication for operative interference as promptly as possible cannot be gainsaid. Schauta, for example, after a careful study of the literature, collected 123 operative cases, with a mortality of 5.7 per cent. and 121 cases treated palliatively, with a mortality of 86.89 per cent., although in another series of more carefully selected cases, he found the mortality by palliative treatment to be only 65 per cent. To recapitulate the diagnostic features:

1. There is sudden pain, nearly always, the exceptional cases being those with sudden collapse, as in two cases which I reported in July, 1909.
2. Uterine hemorrhage occurs within 48 hours after the initial pain. This symptom and sign is common to all cases of ruptures or abortive tubal pregnancy.
3. If to this we add collapse the diagnosis is complete. If collapse is lacking or slightly marked it is on account of gradual internal hemorrhage when on examination the cul-de-sac will show a progressive bulging.

Results at Lebanon Hospital of Deferred Operations for Extrauterine Pregnancy

DR. RALPH WALDO, New York: Many patients are brought into the hospital in a desperate condition, and in the 81 cases that I report there have been but 3 deaths. It was thought that 2 or 3 patients would die in the ambulance. They were freely stimulated and reached the hospital moribund. At no time after reaching the hospital would they have stood an anesthetic or the slightest operation. Necropsies proved the diagnosis of ruptured extrauterine pregnancy to be correct. The third patient who died presented one of these unfortunate cases, occasionally encountered by all surgeons, in which the patient was making an absolutely normal convalescence, when she suddenly died from pulmonary embolism. Seventy-eight other patients were operated on by the abdominal route, and recovered. After a severe hemorrhage another does not take place in less than from a week to ten days. In from two to seven days, depending on the condition, the abdomen is opened from above. The clots and free blood are rapidly removed with the hand and dry gauze sponges, but the abdominal cavity is never irrigated. Formerly, when the patient had lost a large amount of blood we put a quart or two of normal saline solution in the abdominal cavity, and left it there to be absorbed. More recently, this saline solution has been given in rare instances in the cellular tissue by hypodermoclysis, or more frequently in the rectum. In one instance only in the above cases was the abdomen drained; in all others it was closed. The entire operation required from eight to twenty minutes. I prefer the abdominal route, because the operation can be performed much more quickly, and, when the mass is high up and the vagina small, much better. I perform many operations on the tubes and ovaries through the vagina. So I am not prejudiced in favor of the abdominal route.

Discussion of Extrauterine Pregnancy

DR. L. F. SMEAD, Toledo, O.: A woman, aged 25, was brought to me with a diagnosis of ectopic pregnancy. This was her second pregnancy. In her first pregnancy she was cared for by the physician who brought her to me, so that we knew the exact condition. There were no abnormal symptoms. The history of the case was that for two or three days there was slight pain in the right side and during the night preceeding the day on which I saw her there was a slight flow. There was no tenderness in the abdomen particularly and on vaginal examination I found a slight mass over the right cornu of the uterus. The question was whether it was ectopic pregnancy. First, I considered the pregnancy possibly tubal, with a slight rupture into the broad ligament; second, I thought of interstitial pregnancy in the cornu, and third, I considered the possibility of a simple development of the placenta in the right horn of the uterus. The uterus was fully as large as it should be at about three months. As the examination was satisfactory with the abdominal muscles quite relaxed, I decided later that probably a threatened abortion was taking place with the placenta in the right cornu of the uterus, and I decided to treat the case in that light, as I was not anxious to open the abdomen in a normal pregnancy or to overlook interstitial pregnancy in the cornu of the uterus. Two months have elapsed since I saw her. The symptoms have disappeared and apparently a normal pregnancy is progressing.

DR H. W. LONGYEAR, Detroit: This matter of deferred operation in extrauterine pregnancy in the presence of shock has been threshed out in this association several times and, if I remember rightly, the consensus of opinion has been decidedly in favor of immediate operation. It is my opinion that operation should be done in these cases even in the presence of extreme shock. I know of no other class of cases in which we wait in the presence of hemorrhage for shock to cease. We operate primarily for the stoppage of hemorrhage, and to wait for shock to cease in some cases would be fatal.

DR. J. H. CARSTENS, Detroit: Dr. Longyear has struck the keynote. In hemorrhage from a leg that has been cut off, we do not wait for shock to subside, but we stop the hemorrhage. I believe in operating in these cases promptly.

DR. W. H. HUMISTON, Cleveland: I have had an unusual record in cases of ruptured tubal pregnancy, that is, I have yet to have my first fatal case, and I operate on these patients as soon as I can get them ready for operation, or get my instruments there and assistants. I do not care what condition the patient is in, whether in shock or not.

DR. H. S. LOTT, Winston, N. C.: I want to emphasize the character of the pain. Several times I have made a diagnosis of ectopic pregnancy in the early weeks by sitting by the side of the bed of the patient and watching her for several hours, and the pain is always recurrent, rhythmic, and explosive, whereas if the appendix is the seat of trouble the pain is continuous without intermissions, and often without remissions.

DR. J. G. SHERRILL, Louisville, Ky.: I agree with Drs. Carstens and Humiston. If we have a ruptured vessel internally we consider it one of the most dangerous forms of hemorrhage with which we have to deal. If we had a case of gunshot wound of the abdomen we would not wait to open that abdomen. The same course therefore should be pursued in cases of ruptured extrauterine pregnancy.

DR. E. GUSTAV ZINKE, Cincinnati: There are exceptional cases. Extrauterine pregnancy is not always the same in every case. Some of these patients recover without operation. We find these symptoms when we operate for other conditions. Tubal pregnancy terminates in three different ways, namely, tubal abortion with absorption of the ovum rupture between the layers of the broad ligaments and tube ruptured into the peritoneal cavity. In the case of rupture between the layers of the broad ligaments we have a well-defined tumor form. In rupture into the peritoneal cavity we have sudden shock and all the signs of internal hemorrhage, and in such a case prompt action is indicated, and it is for the operator to decide whether an operation should be performed at once or whether he has time to wait. In cases in which the tube ruptures into the peritoneal cavity with severe hemorrhage, with all the symptoms of shock, we do not see the patients in the hospital, but usually at their homes or in places where opening the abdomen is prohibited. It would mean death to operate at once, because neither the surgeon nor the patient is prepared. Experience has taught us that by putting these patients in the recumbent position, and keeping them there with an icebag over the abdomen and lowering the head, often within half an hour or an hour, improvement takes place. The pulse begins to get stronger, and with the appearance of a stronger pulse, or digital examination, we feel the formation of a tumor through the vagina. In cases in which that tumor does not appear the vaginal vault becomes more or less flattened. There is no resistance. You feel nothing apparently. In these cases hemorrhage goes on. In the cases in which a tumor forms we can afford to wait longer and encapsulation will take place and the patient can be operated on with absolute safety within a few days or even weeks.

DR. L. S. MCMURTRY, Louisville, Ky.: The diagnosis is easy in these cases. I have known women who have had one attack of tubal pregnancy and who were then operated on make the diagnosis themselves in the second instance and call the physician and tell him the condition that existed. I have one instance of that kind in mind now, and there is no trouble with the diagnosis and the treatment. When a woman is bleeding to death inside there is only one indication and that is to operate as soon as possible.

DR. C. L. BONIFIELD, Cincinnati: I want to emphasize the point that in these cases, by the time the operator gets to the patient, usually the hemorrhage has taken place and the surgeon does not operate to stop hemorrhage, but to relieve shock, because in the majority of cases the hemorrhage has already stopped.

DR. W. B. CHASE, Brooklyn: Every member of this association believes he is grounded in the principles of surgery, but we have different methods of reaching the same end. We cannot make a universal rule which will apply to every case of tubal pregnancy. The man who attempts to do it will go wrong more than half of the time. Every case must be treated according to the findings, and according to whether the physician is prepared to treat it at the time.

DR. J. PRICE, Philadelphia: I feel that cases of ruptured ectopic pregnancy and all perforative forms of disease belong to the calamities, and we should be prepared to operate

promptly. The surgeon should be the cleanest and most prepared man living.

DR. C. E. CONGDON, Buffalo: It is not my policy to cross swords with my friends, but when they make the assertion that the diagnosis of ectopic pregnancy is always easy and that any one can make it without any preparation I certainly must take exception to the statement. The members of this association mean that they can make a diagnosis, but not the average general practitioner.

DR. R. WALDO, New York: A mistake made much more frequently than any other is that the patient is suffering from incomplete abortion.

The Breast of the Expectant Mother; Its Care Before and During the Period of Lactation

DR. FRANCIS REDER, St. Louis: To prepare a nipple properly the expectant mother is instructed to use soap and water freely. After drying the breast, gentle friction with a rough towel or flesh brush is made for about five minutes. Following this rubbing, the nipple is massaged by rolling and kneading it between the fingers, gentle traction being made during these manipulations. Olive oil may be used freely during the process of massage, which is to be done twice daily. It is surprising how an almost hopeless appearing nipple in a comparatively short time will assume the characteristics of a normal one. The application of alcohol and astringent lotions is to be condemned. A nipple cared for with these agents will become large, hard and inelastic, presenting deep corrugations, which will impede the healing of any excoriation or fissure, should such a lesion occur. The pain accompanying such a lesion brings many hours of suffering to the mother. A nipple prepared by systematic massage will usually withstand the strain of the nursing period without mishap. Its care after the child has commenced to suckle is one of simple cleanliness. Thorough ablutions after each nursing, to free it from any accumulated secretions, and liberal dusting with boracic acid, which is washed off when the child is put to the breast, are all that is necessary. This treatment must be diligently adhered to. The care of the breast is as important as that of the nipple. Its anatomic structure gives evidence of how readily this organ is amenable to culture, if only instituted properly and at the right time. The breast of a healthy girl that does not show development conforming to the incentive given by puberty should after an elapse of three years be subjected to the stimulating influences of systematic massage, to be continued until a normal equipoise has been attained. By developing the breast at this stage of womanhood, many of the obstacles pertaining to a normal motherhood may be overcome. The massage in reality is an exercise most simple in character. By placing a breast in the palm of each hand and locking the fingers across the chest, the young woman is told to walk about in a well-aired room, and with a full inspiration force the hands apart. This exercise is to be repeated for at least fifteen minutes daily. It is most conveniently carried out on rising and before retiring, and should be continued until satisfactory results show themselves. The normal breast of the expectant mother should receive some attention as soon as the physiologic changes manifest themselves. The breast during the pregnant state does not require the judicious management that the breast demands after lactation has established itself; it is of the greatest import, especially if the breast gives evidence of great fulness and tension with tenderness, that the lactiferous ducts be maintained in as patulous and healthful a state as possible. In short, the secretions in the tubes should not be allowed to become stagnant. It has been demonstrated that the *Staphylococcus albus* and the *Staphyloccoccus aureus* find entrance into the milk ducts from the skin. It seems to me that this so-called milk fever is the result of these micro-organisms having gained entrance into the lactiferous ducts, and having been stimulated into great activity by finding a proper medium in the milk for their propagation.

DISCUSSION

DR. THERESA BANNAN, Syracuse, N. Y.: I have been looking for milk fever, referred to by Dr. Reder, for 20 years in practice and have not found it. The question of the care of the nipple of the expectant mother is of far-reaching and tremendous importance. It solves 50 per cent. of the problems of pure milk. It means not only the health of the mother, but the life not only of the first child, when most of the difficulties arise, but of all her subsequent children.

DR. WILLIAM G. DICE, Toledo, O.: It it the general practitioner who is at fault to a great extent. I think most patients are willing to take proper care of the breasts if given proper instruction. I do not recall seeing in my own practice more than two cases of abscess of the breast in ten years.

DR. A. J. RONGY, New York: I thought that the term milk fever had been eliminated from the vocabulary of our obstetrical work. In a record of 6,000 cases, in both hospital and maternity work, we practically do not have what is known as mastitis. We never have cases of suppurative mastitis. It seems to me that the trouble with these engorged breasts, or with so-called milk fever, is in doing too much for the patient rather than doing too little.

DR. J. H. CARSTENS, Detroit: I am opposed to the application of alcohol or tannic acid and other astringents to the breast. The nipple of the mother should be soft and pliable.

(To be continued)

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

CITY NEWSPAPERS AND SANITARY REFORMS

Thanks to a broader knowledge and a developing public sentiment, it is no uncommon thing to-day to see a great city newspaper stand squarely for sanitary progress. In this respect none ranks higher than the Philadelphia *North American*, whose editorial utterances on public health are sane and sound from both an economic and scientific standpoint. An editorial in a recent issue takes as its text a statement made by one of the candidates for governor of the state. THE JOURNAL is not especially interested in state, local, or party politics, but the editorial in question contains so many good things that it is deserving of reproduction in full had we the space. Strange and well nigh unbelievable as it may seem, the time has apparently arrived, in Pennsylvania at least, when the utterances of a candidate for political preferment on the subject of the health and life of the people are regarded as almost as important as his views on the tariff or on the crime of '73. Such papers as the *North American* are doing a great work in arousing and guiding public sentiment in support of life-saving measures. Under the title, "Grim Advocate of Death," the editor says:

Not in the credulous days of the witch-burners, nor in the dark ages when dirt was considered a corollary of holiness, but in this presumably enlightened year of our Lord 1910, before an audience of sane citizens of Pennsylvania, a man who has not the excuse of illiteracy dared declare this doctrine:

> "I shall have something to say in the campaign about our health department. It is the best illustration of what Tilden said was the meddling into the affairs of an individual. It is sumptuary legislation with a vengeance.
>
> "Common-sense application of the rules of education along hygiene has been taught in the public schools for twenty-five years, and we are just now realizing the fact that we know nothing at all about it.
>
> "Of all the cranks in the world, the scientific crank is the worst to deal with, because, while he has truth on his side, he sees nothing but the naked facts. He finds bacteria and germs everywhere, and if you give him enough latitude, he will find impurity everywhere.
>
> "He closes your country school because some one with a case of mumps or German measles has attended.

"He will not allow you to expectorate for fear that some germ will be started upon its deadly mission.

"He objects to having your barnyard drain into the rivulet for fear some germ will contaminate the creek miles below.

"He is just now engaged in working up a sentiment to get the next legislature to require you to erect sun parlors for your cows and biplanes for your chickens. Hogs will be something of the past. Your cows will be required under penalty of the law to drink nothing but filtered water, and their milk must be pasteurized before shipment. He intends to send inspectors into every dairy in the state.

"Not content with an army of 1,200 men on the state payroll with an expenditure nearly as great as the whole expenses of government during Pattison's first administration, he is looking for new worlds to conquer, and soon the veterinary department and the pure food department will form new regiments in the army of the employed."

Had Rip Van Winkle gone to sleep an office-seeking politician and slept a century instead of napping only twenty years, he might have been excused for such a speech. But it is difficult to understand how any man who has been awake and honest during any portion of the past twenty years could so play the part of a voice both from and for the tomb.

Yet that plea for dirt, ignorance, disease and death was made only two days ago as an appeal for votes by a man who knows how to read and write, whom we do not think even intellectually dishonest, who has been elected to the senate of this state, and actually hopes, even after those utterances, to be elected governor of a self-respecting, twentieth-century American commonwealth.

The farmer is studying fertilization, alternation of crops, selection of seeds, retention of the fittest and elimination of the unfit among his livestock, the application of the germ theory to the soil beneath his feet, which has given to Europe three times the grain product per acre that our virgin lands produce.

And here comes a man asking for their votes by such an insult to their intelligence as lies in asking them to go back half a century in consideration of those nearest and dearest to them. . . . .

We do not think Mr. Grim ever harbored a thought of murder of his fellow-man or woman. He is simply a victim of the ignorance which he mistakenly supposes is shared by the farmers of Pennsylvania.

It might be well for him to ask the oldest war-time farmer whom he meets about gangrene in hospitals and about how not only a gunshot wound, but any internal abdominal ailment, meant death before the advent of scientific meddlers like Pasteur and Lister.

It might be well for him to ask some farmer's wife, who saw a long-lost but unforgotten baby choke to death in her arms, and later saw a child quarantined from school and saved to health and strength by antitoxin.

He talks of "cranks"—scientific, meddlesome, official cranks—who forbid the pollution of streams and the drainage of poisonous filth into drinking water. And this to the families that, one day each year at least, put fresh flowers on the grave of one whose life was heedlessly wasted by typhoid.

Actually, in this stage of the world's progress, a man dares assert that it is an infringement on personal liberty to put restrictions on expectoration.

Let the man spit where he pleases—in or out of the executive offices of the capitol at Harrisburg. But, in the name of God and Mont Alto and White Haven, and the memory of all the dead innocent victims of dried tuberculosis sputum, blown from the dust under their feet into their nostrils, let there be an end of such noxious demagogy.

This is not a matter of politics. It is a matter of state shame that a department of Pennsylvania's government, that is the admiration of the other states and not a hissing and a byword to the rest of the country, should be so assailed by a would-be governor. . . . .

And the farmers of Pennsylvania know, as well as we know, as well as Mr. Grim should know, the ideal of the health department, the "microbe cranks," the plan that is the one thing for which this state has earned and is earning the admiration of the civilized world:

A Pennsylvania in which there shall be no young men and women languishing away with tuberculosis; a Pennsylvania in which no children shall die of diphtheria; a Pennsylvania in which there shall be no typhoid, no scarlet fever, no smallpox, no meningitis, no dysentery, no malaria—this is the kind of Pennsylvania which the state department of health hopes ultimately to create.

It does not expect to reach this goal in a year, or ten years, perhaps not in a single generation, but this is the ideal that it has constantly in mind. It recognizes the fact that, so long as any of these diseases exist, their prevalence is a distinct reproach to the state. It is a reproach simply because the method of eliminating them is known.

The old theory of government as a power which protects its citizens only from foreign foes and native marauders is giving way to new standards of civilization. The greatest enemies to the state are those which are unseen, and the first duty of an enlightened commonwealth is to protect its people against them.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Second Month—Fourth Weekly Meeting

DISEASES OF THE VEINS

VARICES, PHLEBECTASES

ETIOLOGY: Anatomic and mechanical factors. Age, sex, occupation.

PATHOLOGY: Gross and microscopic changes.

SYMPTOMS: Local and secondary disturbances.

VARICOSE VEINS OF LOWER EXTREMITY: Veins involved. Local changes. Secondary disturbances. Complications.

TREATMENT of veins; of ulcers.

VARICOCELE: Causes. Symptoms. Indications for surgical treatment. Methods of operation.

Monthly Meeting

Etiology and Early Diagnosis of Arteriosclerosis.
Prophylaxis of Diseases of the Arteries.
Surgical Treatment of Aneurism.

State Boards of Registration

COMING EXAMINATIONS

GEORGIA: Regular, The Capitol, Atlanta, October 11. Sec., Dr. I. H. Goss, Athens.

ILLINOIS: Coliseum Annex, Chicago, October 19-21. Sec., Dr. James A. Egan, Springfield.

KANSAS: Topeka, October 13. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 18-19. Sec., Dr. A. B. Brown, 108 Baronne Street.

MICHIGAN: Lansing, October 11-13. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, October 11-12. Sec., Dr. S. H. McLean.

NEW JERSEY: State House, Trenton, October 18. Sec., Dr. H. G. Norton.

NEW MEXICO: Santa Fé, October 10-11. Sec., Dr. J. A. Massie.

OKLAHOMA: Muskogee, October 11. Sec., Dr. Frank P. Davis, Enid.

WYOMING: State Capitol, Cheyenne, October 12-14. Sec., Dr. S. B. Miller, Laramie.

Virginia June Report

Dr. R. S. Martin, secretary of the Medical Examining Board of Virginia, reports the written and oral examination held at Richmond, June 21-24, 1910. The number of subjects examined in was 9; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 110, of whom 97 passed, including three

osteopaths, and 13 failed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University, Washington	(1910)	82
Georgetown University	(1910)	82
Columbian University, Washington, D. C.	(1898)*	
Hahnemann Med. Coll. and Hospital, Chicago	(1883)*	
University of Louisville	(1909) 76; (1910)	83, 85, 86
Atlantic Medical College	(1910)	77
Maryland Medical College (1908) 80; (1909) 75, 82; (1910)		80, 80
Johns Hopkins University	(1908)* (1909)	85
Baltimore Medical College	(1910)	79, 79, 80
University of Maryland	(1896)* (1910)	82, 82
Baltimore University	(1898)*	
College of Physicians and Surgeons, Baltimore	(1882)*	
Leonard Medical School	(1910)	75, 75, 85
University of Pennsylvania	(1910)	79, 80, 82, 87
Chattanooga Medical College	(1907) 76; (1909)*	
Memphis Hospital Medical College	(1909)	75
University of the South	(1908)* (1909)	77
University College of Medicine, Richmond (1910)		79, 81, 82, 83, 84, 84, 84, 85, 86, 88, 89.
Medical College of Virginia (1908) 77; (1909) 80; (1910)		77, 77, 78, 78, 78, 79, 79, 79, 80, 80, 81, 81, 81, 82, 82, 82, 83, 83, 83, 84, 84, 84, 85, 86, 89.
University of Virginia (1905)* (1907) 87; (1908) 75, 80; (1909)		79, 82; (1910) 77, 78, 81, 82, 82, 82, 83, 83, 84, 85, 85, 85, 88.

FAILED

Maryland Medical College	(1909)	69, 73
College of Physicians and Surgeons, Boston	(1907)	74
University of Buffalo	(1895)*	
Leonard Medical School	(1908) 72; (1909) 72; (1910)	69, 73
University of West Tennessee	(1904)*	71
University of the South	(1904)* (1908) 68; (1909)	67
University College of Medicine, Richmond	(1910)	72

LICENSED THROUGH RECIPROCITY

College	Year* Grad.	Reciprocity with
George Washington University	(1908)	Dist. Colum.
Southern Homeopathic Medical College	(1906)	Maryland
University of Maryland	(1910)	Maryland
Leonard Medical School	(1905)	Delaware
Washington University, St. Louis	(1902)	Missouri
St. Louis College of Physicians and Surgeons	(1899)	W. Virginia
Jefferson Medical College	(1885)	W. Virginia
Marquette University, Milwaukee	(1908)	Wisconsin

* Took oral examination.

Texas Reciprocity Report

Dr. M. E. Daniel, former secretary of the Texas State Board of Medical Examiners, sends a report of candidates licensed through reciprocity from January 1 to August 1, 1910. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1910)	Arkansas
Hering Medical College	(1903)	Illinois
Rush Medical College (1891) North Dakota; (1900) Iowa; (1909) Ohio.		
Northwestern Univ. Med. School.	(1900) (1906) (1908)	Illinois
College of Physicians and Surgeons, Chicago (3, 1902) (1905) (1906) (1907) Illinois.		
National Medical University, Chicago	(1905)	N. Dakota
Jenner Medical College	(1909)	Illinois
Chicago College of Medicine and Surgery	(2, 1910)	Illinois
Indiana Medical College	(1906)	Indiana
University of Iowa, College of Medicine	(1896)	Minnesota
College of Phys. and Surg., Kansas City	(1910)	Kansas
University of Louisville (1901) Indiana; (1909) Illinois; West Virginia.		(1909)
Kentucky University	(1906)	W. Virginia
Kentucky School of Medicine	(1903)	Indiana
Hospital College of Medicine, Louisville (1901) Indiana; (1903) Kansas.		
Tulane University of Louisiana	(8, 1910)	Arkansas
Baltimore Med. College. (1906) West Virginia; (1909)		Maryland
Johns Hopkins University	(1902)	Michigan
University of Maryland	(1895)	Virginia
Boston University	(1888)	Ohio
University of Minnesota, College of Medicine	(1899)	Minnesota
Washington University, St. Louis	(1900)	Illinois
University Medical College, Kansas City	(1910)	Arkansas
St. Louis University	(1906) (1909)	Missouri
American Medical College, St. Louis	(1895) (1907)	Missouri
St. Louis College of Physicians and Surgeons	(1909)	Missouri
Barnes Medical College (1903) Illinois; (1899) North Dakota; (2, 1905) (1909) Missouri.		
Kansas City Hahnemann Medical College	(1908)	Kansas
Lincoln Medical College	(1905)	Nebraska
Cornell University Medical College	(1908)	Illinois
Bellevue Hospital Medical College	(1894)	Kansas
New York University Medical College	(1882)	Nevada
Western Reserve University	(1905)	Ohio
Starling-Ohio Medical College	(1910)	Ohio
Eclectic Medical Institute, Cincinnati	(1880)	Kansas
Miami Medical College	(1909)	Ohio
Medical College of Ohio	(1904) (1907)	Ohio
Jefferson Medical College	(1906) Illinois; (1906)	Michigan
Memphis Hospital Medical College	(3, 1910)	Arkansas
Ft. Worth University	(1910)	Arkansas
Baylor University, Dallas	(1910)	Arkansas
Southwestern University Medical College	(1910)	Arkansas
Wisconsin College of Physicians and Surgeons	(1902)	Wisconsin

Book Notices

LES GREFFES OVARIENNES ENVISAGÉES AU POINT DE VUE DE LA PRATIQUE CHIRURGICALE. Etude critique, expérimentale et clinique. Par le Docteur Louis Sauvé, Prosecteur à la Faculté. Travail de la Clinique de M. le Professor Quénu. Paper. Price, 3.50 francs. Pp. 96, with 4 illustrations. Paris: G. Steinheil, 2, rue Casimir-Delavigne, 1909.

The author of this work has set out to discover the value of ovarian grafting in surgery and has collected, classified and subjected to careful criticism the various results hitherto obtained from human and experimental surgery. Holding that it has been well established by Limon that there are present in the ovary two kinds of glandular cells and two kinds of secretions, that of the corpus luteum and that of the interstitial cells, and believing that the failure of the latter by removal of the ovary or by their destruction by disease leads to pathologic phenomena, the author concludes that it is reasonable to assume that grafting of the ovary may be of value if it can be successfully done. He then subjects the results of both surgical and experimental operations to clinical and histologic tests.

He arrives at the following conclusions: 1. Autografting, that is, transplanting the whole or a portion of one ovary from its normal seat to another location in the same individual, intraperitoneal or under the skin or intramuscular, is practical, especially when done with a simple technic. The method of grafting with a vascular anastomosis, however, is considered too dangerous. Heterografting, that is, transplanting an ovary from one individual into another, fails in the great majority of cases. To what degree the internal secretion of the ovary is established in the graft is uncertain. 2. The clinical benefit of the grafts are rarely appreciable. 3. The practice of human ovarian grafting is at present very limited, its most enthusiastic advocates having had not more than a score of cases in the last ten years. The booklet closes with a complete bibliography.

THE LAWS OF LIFE AND HEALTH. By Alexander Bryce, M.D. Cloth. Price, $2 net. Pp. 421, with illustrations. Philadelphia: J. B. Lippincott Company, 1910.

While the layman is interested as never before in the subject of health preservation, the number of books which satisfactorily treat it are lamentably small. Books there are by the score that professedly have been written to meet this need, but the great majority of them are entirely inadequate. Many have been written by those whose literary attainments far outstripped their scientific knowledge, with the result that accuracy has been sacrificed in the attempt to "popularize" the book. On the other hand, not a few are all that could be desired scientifically, but the language is so technical and the style so abstruse as to render the works worthless for lay perusal. Bryce in his "Laws of Life and Health" has managed to steer clear of the Scylla of inaccuracy on the one hand and to avoid the Charybdis of technicality on the other—not that the whole of the book would be intelligible to the ignoramus, but the ignorant are not as a rule interested in the subject with which it deals. To the average layman of ordinary intelligence and education, however, the subject-matter will be perfectly lucid. One of the interesting features of the book is the eminently fair and impartial way in which the author deals with what may be called the controversial questions of hygiene and dietetics. Each chapter of the book is prefaced by a "law" in which is expressed the principle underlying the subject-matter of that chapter; furthermore, at the end of each is given a brief and succinct summary. Dr. Bryce's work is one that the physician can conscientiously recommend to his patients, because of the sterling common sense which characterizes it and the absence of "fads" and "notions."

HOOKWORM DISEASE. Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By George Dock, M.D., Professor of the Theory and Practice of Medicine, Medical Department Tulane University of Louisiana, New Orleans, and Charles C. Bass, M.D., Instructor of Clinical Microscopy and Clinical Medicine, Medical Department, Tulane University of Louisiana, New Orleans. Cloth. Price, $2.50. Pp. 250, with 50 illustrations. St. Louis: C. V. Mosby Co., 1910.

Uncinariasis is a historical disease and has been the subject of preventive and remedial measures in European countries for many years. Though it had been suspected or hinted

at as the cause of morbidity, in the South, particularly, and a few cases had been actually demonstrated previously, "the era of productive discovery" in regard to uncinariasis in this country began in 1895 when Smith found the ova in human feces in Texas, and thence knowledge of the disease advanced rapidly through the work of Ashford, King, and Gutierrez in Porto Rico in 1899 and subsequent years, and through the studies of Stiles, who has developed the subject thoroughly and named the parasite most frequently found in this country, *Necator americanus*. The great prevalence of the parasite in Porto Rico and the South has led to a wide study of the subject and the production of a large literature in the weekly and monthly medical publications and its discussion in conferences and medical meetings. Now come the text-books. This book by Dock and Bass is the result of a study of the literature and of their own work in Louisiana and Mississippi, and describes concisely the history, distribution and zoölogic features of the hookworm, the modes of infection and the pathology, symptomatology, prophylaxis, diagnosis and treatment of the disease. Not much space is devoted to treatment, since this is comparatively simple and confined almost entirely to the administration of thymol, although other drugs are mentioned. The chapter on diagnosis, however, is complete, and gives clear and explicit directions for examining the feces for the worms, the larvæ and the eggs, the diagnosis depending on the finding and identification of the ova, as the worms are rarely if at all found in the feces unless oteniacide has been given. The history of ground-itch, the appearance of the patient and the presence of eosinophilia also indicate the presence of the parasite. The subject of prophylaxis is perhaps the most important, on account of the wide distribution of the disease and the production of so much incapacitating morbidity. One of the first and most important prophylactic measures is the cure of those affected. The continuance or extension of the disease depends entirely on the human host who alone harbors the human parasite and deposits the ova in the feces. The prevention of soil pollution is important but secondary, and a full discussion of the subject is given. The book makes free use of the literature and the work of others and well covers the subject of this important disease, which has incalculably retarded the development of an immense and rich section of our country. It contains numerous charts showing the rapid improvement in the blood picture following treatment. It is a practical working book in the management of this disease.

SURGICAL AFTER-TREATMENT. A Manual of the Conduct of Surgical Convalescence. By L. R. G. Crandon, M.D., Assistant in Surgery at Harvard Medical School. Cloth. Price, $6 net. Pp. 803, with 265 illustrations. Philadelphia: W. B. Saunders Co., 1910.

One of the many advantages of a hospital training or an internship in a large hospital is the opportunity it affords of learning the details of many minor procedures relating to the care of patients both before and after operations, which, heretofore, have formed in a sense an unwritten book and which have descended by word of mouth or by precept from senior to junior members of the house staff.

In this volume appears much of this "unwritten" matter, so that the younger members of the profession need no longer be altogether dependent on their senior brothers for the acquisition of this knowledge. But the contents of this volume are much more comprehensive than might be inferred from the above, as it contains much that is essential for the nurse to know, such as how to prepare the patient for the operation, or for catheterization; how to give enemas; formulas for nutritive enemas; proctoclysis; lavage of the stomach; bandaging; care of bed-sores; invalid and convalescent food receipts; massage and movements, etc.

There is also much that is of great value to the older surgeon, such as the details of many operative procedures; methods of after-dressings, splints, bandages, casts, fixation appliances, etc., and a most interesting and instructive chapter by Sanborn on "Therapeutic Immunization and Vaccine Therapy," in which are taken up the principles of immunization; the rôle of opsonins; the opsonic index in health and disease; theories relating to infection; auto-inoculation by Bier's method; technic of the preparation, care and use of vaccines in which the clinical side of the subject is quite extensively presented, etc.

It will thus be seen that the volume is more comprehensive in its subject-matter than might be supposed from the title. It is an excellent work and can be heartily commended.

A SYSTEM OF SYPHILIS. In Six Volumes. Edited by D'Arcy Power, M.B., and J. Keogh Murphy, M.C. With an Introduction by Sir Jonathan Hutchinson, F. R. S. Volume IV. Syphilis of the Nervous System. By F. W. Mott, M.D. Cloth. Price, $13.50. Pp. 502, with 57 illustrations. New York: Oxford University Press, 1910.

This volume of Power and Murphy's series is by one author, and it gains greatly in continuity and balance thereby. Dr. F. W. Mott, to whom the task of writing on syphilis of the nervous system has been entrusted, is notably suited for it, and the editors are to be praised for their wisdom and courage in assigning the entire subject to him, instead of, as is usual, parceling the topics around among numerous writers. After an introductory chapter in which a broad survey of the subject is made, he considers his special topics in the following order: general pathology of syphilis of the nervous system; general symptomatology of brain syphilis; syphilis of the spinal cord; parasyphilis; the cerebrospinal fluid in relation to syphilitic diseases of the nervous system; the etiology of tabes; general paralysis of the insane; diagnosis of syphilis of the nervous system; tabes; nervous diseases in congenital syphilis; specific treatment of syphilis of the nervous system; general treatment and prognosis of syphilitic diseases of the nervous system. These chapter headings indicate the broad view of the subject which the author takes, and the details are worked out not only with an intimate knowledge of the symptomatology and pathology of syphilis in its multiform attacks on the nervous system, but with an equal familiarity with the recent advances in the subject which have come from the study of experimental syphilis in apes, from the discovery of the *Spirochæta pallida*, and from the application to syphilis of the complement fixation test. Altogether the volume is a very valuable addition to the literature of syphilis and a credit to British scholarship.

GRUNDRISS UND ATLAS DER SPEZIELLEN CHIRURGIE. Von Georg Sultan, M.D. Second Edition. Lehmann's medizinische Handatlanten. Vol. xxxvii. Cloth. Price, 16 marks. Pp. 624, with 261 illustrations. München: J. F. Lehmann's Verlag, 1910.

The author says that in preparing this work he had two objects in view: first, to present an atlas on surgery which should form a part of Lehmann's "Medical Atlases;" and second, to present a text on surgery which should come in between the too condensed compends and the more elaborate works on surgery, the idea being to condense as much as possible, yet to omit nothing which is essential.

The atlas consists of 80 full-page handsomely colored plates from life and 479 illustrations in the text, many of which are in two and three colors, and all of which are said to be original. As an atlas the work is a good one, and the artists and the publishers are to be congratulated on the excellence of the plates and illustrations. The text is concise and to the point, but possesses no other special advantage.

PROCEEDINGS OF THE EXERCISES AND CONFERENCES OF THE NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTIONAL CHILDREN. Inaugurated on the occasion of the Tenth Anniversary of the Grossmann School for Nervous and Atypical Children, April 1, 1910. Waldemar H. Grossmann, Secretary. Plainfield, N. J. Paper. Price, $1.50. Pp. 141. 1910.

This pamphlet contains the proceedings, including papers, of the first conference of the organization. The papers describe work being done in the education and training of exceptional children in New York City and other places, and the problems presented by such children in the schools. Other papers are on biologic variations causing retardation, congenital symbol amblyopia, hysterical states in childhood, a comparison of the psychologic and chronologic ages in children, hereditary and general causes of exceptional development, the exceptional child and the law and many other papers on allied subjects. With the present tendency to differentiate in the school courses between the normal pupils and those varying from the normal standard these papers should prove of interest to educators, school authorities and those interested in child study.

MICHAEL SERVETUS. His Life and Teachings. By Carl Theophilus Odhner, Professor of Church History, Academy of the New Church, Bryn Athyn, Pa. Cloth. Price 50 cents. Pp. 96, with illustrations. Philadelphia: J. B. Lippincott Co., 1910.

Probably no more remarkable man ever lived than Michael Servetus; but, hounded by both Catholics and reformers, and

by Calvin especially, his books destroyed almost as soon as printed, and himself burned at the stake in his early manhood, he accomplished practically nothing, and his influence on his own and succeeding generations has been *nil*. Finding opposition and persecution on every hand, he temporarily gave up his theologic writings and studied medicine, and for several years had a large practice. But the temptation was too strong and he again became involved in a fight with the theologians. In the present work Professor Oldner discusses and defends not only Servetus the theologian, but Servetus the man. The book is of medical interest simply because Servetus was a physician; it will appeal especially to theologians and has a value as a historical contribution to the subject of martyrs to religion.

ESSENTIALS OF LABORATORY DIAGNOSIS. Designed for Students and Practitioners. By Francis Ashley Faught, M.D., Director of the Laboratory of the Department of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Second Edition. Cloth. Price, $2 net. Pp. 336, with illustrations. Philadelphia: F. A. Davis Company, 1910.

This treatise covers the methods of laboratory diagnosis. The directions are clear and concise and sufficient for carrying out the ordinary methods of examination demanded in clinical investigations. In the preparation of the new edition, the material has been brought up to date without materially increasing the size of the book. The book is excellently illustrated. In an appendix a description is given of the author's private laboratory equipment; a number of useful tables are also added.

HYPNOTISM AND TREATMENT BY SUGGESTION. By J. Milne Bramwell, M.B., Author of "Hypnotism: its History, Practice and Theory," etc. Cloth. Price, $1.75 net. Pp. 216. New York: Funk & Wagnalls Co., 1910.

Dr. Bramwell, who is one of the principal English advocates of the use of hypnotism in medicine, in this little book gives a summary of his experience and views. A brief history of hypnotism, especially in its development in England, is given. The body of the book is largely taken up with case histories in which the author's successes are reported. He discusses the various theories of hypnosis and gives his objections to them, but says that unfortunately he has none of his own to offer. The book is a pretty good summary of the subject, though not a very elaborate or detailed one.

PRAKTISCHE WINKE FÜR DIE CHLORARME ERNÄHRUNG. Von Dr. H. Strauss, Dirigierender Arzt der inneren Abteilung des Jüdischen Krankenhauses in Berlin. Paper. Price, 1 mark. Pp. 47. Berlin: S. Karger, 1910.

In this little pamphlet Professor Strauss has given a supplement to his other publications on the salt-poor diet in which practical directions are given for the carrying out of the treatment. The indications and principles of the method are not discussed. A large number of recipes and suggestions for the preparation of various foodstuffs in palatable form without salt are given and the book is completed by extensive tables based on the analyses of Strauss and Leva, giving the percentage of salt in the raw material of different foodstuffs.

A MANUAL OF OPERATIVE SURGERY. By Sir Frederick Treves, Bart, F.R.C.S., Serjeant-Surgeon to H.M. the King, and Jonathan Hutchinson, F.R.C.S., Surgeon to and Lecturer on Surgery at the London Hospital. Third Edition. In Two Volumes. Vol. II. Cloth. Price, $13. Pp. 821, with 493 illustrations. Philadelphia: Lea & Febiger, 1910.

The previous editions of this book met such general favor that it is merely necessary to point out new and enlarged features. Considerably more space is given to the chapter on operations on the skull and brain, middle ear and mastoid antrum, and a new chapter on tendon surgery is added. The mechanical features of the book deserve special mention. The type is clear and clean-cut, the paper is not glossy and the illustrations are numerous, well made and descriptive.

UEBER DIE NATUR UND DIE HERKUNFT DES TRACHOMERREGERS UND DIE BEI SEINER ENTSTEHUNG ZU BEOBACHTENDE ERSCHEINUNG DER MUTIERUNG DES GONOKOKKUS NEISSER. Von Dr. Hans Herzog (Berlin). Paper. Price, 5 marks. Pp. 56, with illustrations. Vienna: Urban & Schwarzenberg, 1910.

Herzog considers the work that has been done on the "trachoma bodies" of Halberstadter and Prowazek, and gives a fairly complete bibliography. In his opinion the "trachoma bodies" are mutation forms of the gonococcus of Neisser. His theory and his work are very entertaining but not completely convincing.

Miscellany

REPORT ON OBSTETRIC TEACHING

The report of a special committee appointed by the American Gynecological Society to investigate the present status of obstetric education in Europe and America and to make recommendations for the improvement of obstetric teaching in this country appears in the *American Journal of Obstetrics and Diseases of Women and Children*, August, 1910. The committee consisted of Prof. B. C. Hirst, of the University of Pennsylvania, Medical Department, chairman; Prof. E. B. Cragin, of Columbia University, College of Physicians and Surgeons; Prof. J. Clifton Edgar, Cornell University Medical College; Prof. C. M. Green, Medical School of Harvard University; Prof. E. P. Davis of Jefferson Medical College; Prof. J. W. Williams of Johns Hopkins University Medical Department, and Prof. J. Clarence Webster of Rush Medical College (University of Chicago).

RECOMMENDATIONS

A detailed statement of the methods employed in certain medical colleges of Great Britain, Germany, Austria, Switzerland, France, and Italy is given, and, by way of comparison, of the courses given in the American colleges represented by the members of the committee.

Length of Instruction.—It is recommended that the teaching of obstetrics occupy at least two years of the medical course, and that those expecting to practice obstetrics should be urged to avail themselves of elective opportunities. The committee also recommended that the number of labor cases personally attended by each undergraduate student should be at least six, under supervision and instruction.

Character of Instruction.—The committee also recommended all the known methods of teaching this branch of medicine, namely: didactic lectures, clinical lectures, clinical conferences, ward classes and touch courses, hospital and out-patient instruction, manikin practice in operative obstetrics and recitations. Of the first three methods, it recommended specially clinical lectures and conferences, and that ample facilities should be afforded students to make antepartum examinations, including inspection, abdominal palpation, pelvimetry, fetometry, vaginal examinations, etc. A two-weeks' hospital residence should be required, the committee thinks, before the out-patient practice.

Scope of Instruction.—It is recommended that as obstetrics at present includes pregnancy and parturition, their complications and consequences, and the complete recovery of the women after labor, that obstetric instruction should include the medical and surgical treatment of these conditions.

The tendency of obstetrics to become more surgical in practice and to require a surgical training is evidenced by the fact that in the medical schools of Europe and in more than one-third of the first fifteen medical colleges of this country, the chairs of obstetrics and gynecology are combined under one head.

The Individual Study of the Young Criminal.—The antisocial acts which we call criminal are just as much the outcome of physical and mental capabilities, of emotions, desires, obstinancies, weaknesses of character, imitation, submission to psychologic influences of the crowd and other definite results of environment as are the more socially desirable aspects of conduct. For this reason William Healey (*Jour. Am. Inst. of Crim. Law and Criminology*, May, 1910) believes that a scientific inquirer is early forced to doubt the efficacy of investigating the causes of crime by any generalized method and must question the system of treating the criminal through institutional life; but much, he thinks, can be gained by an intensive investigation of the individual. There is considerable analogy all the way through between crime, a so-called social disease, and bodily disease. To understand each there must be estimation of the normal as well as of the pathologic, there must be study of etiology, symptomatology, diagnosis and, finally of treatment. But the analogy must not be carried so far that crime is likened to a specific disease

and the hope aroused that there may be found a specific treatment. In this paper, Healy deals only with the diagnosis of the underlying causes and attempts to show the great complexity of etiologic factors and the hopelessness of treating the cases wholesale. After reciting the histories of a number of young offenders, Healy analyzes the causes of juvenile criminality as follows: bad companions, immoral mother, poverty, mental subnormality, cheap plays and nickel shows, bad heredity, very poor education, bandit ideas from books, morbid impulsion-kleptomania, mother away working—no one to look after the children, bad sexual habits, congested neighborhood, defective antenatal conditions, neglectful father, innate laziness, epilepsy, difficult birth, degeneracy with stigmata, feeblemindedness, recent immigration, densely ignorant family, desire for finery, careless not ignorant parents, hypersensitiveness, stepmother, mental peculiarities—perhaps the beginning of a psychosis—teasing by other children, alcoholism of parent, high mental capacity out of all proportion to the environment, nervous irritability, poor general health, defective vision, defective hearing, great love of excitement and adventure. The above study shows that delinquents have immensely varying needs, capabilities and adaptabilities, and the system which has mainly attempted reformation by mere restraint or, recently, somewhat by efforts at formal education or other classwork in custodial institutions is not effective. We know by court records that old methods are largely a flat failure as a deterrent to crime. In place, then, of any policy of repression or effort at reformation in large groups, what are the more constructive methods that offer greater chances of success? The amount of alterability in the whole situation is, plainly enough, the sum total of the alterabilities of the individuals concerned. Then it follows that if, as we have seen, the needs and possibilities of these individuals are extremely various, greatly varying methods of meeting those needs and developing those possibilities must be inaugurated, if the full amount of modification of the situation is to be realized. Just how much alleviation the entire crime situation can be subjected to is, of course, altogether unknown, and it certainly will remain unknown until the most rational procedures of treatment follow the most rational methods of diagnosis—especially until the importance of the young criminal as a factor is realized, his importance as an individual at the age when the twig is bent, needing individualistic study and individualistic treatment.

Medicolegal

Injured Person Not Responsible for Malpractice

The St. Louis Court of Appeals says that the case of Scholl vs. Grayson (127 S. W. R. 415) was brought to recover damages for a man being negligently run down by an automobile. He was first treated for his arm by a physician whom he afterwards discharged and sued for unskillful and careless treatment. The petition in that case was offered by the defendant in this case as an admission against the interest of the plaintiff. But the offer of the petition in the action filed by the man against his first physician for wrong treatment was not accompanied by an offer to prove the physician was not of good reputation, or that he fell short of due care in consulting him. The duty of a party injured by the tort (wrongful act) of another to use reasonable care to obviate, as far as possible, bad results from the injury and thereby diminish the damages, extends no further in the matter of selecting a physician to treat the injury than to select one of good repute. For lack of care and skill shown by such a physician in his treatment, the patient is not answerable; nor is the circumstance admissible to mitigate the damages for which the tort-feaser (wrongdoer) is liable. The petition filed against the physician was therefore properly excluded in this case because it tended to establish no fact favorable to the defendant in this case.

Reciprocity Provision in Medical Practice Act—Powers of Board and Their Limitation

The Court of Appeals of the District of Columbia says that the case of United States vs. Custis and others, brought on the relation of one Thompson (38 W. L. R. 396), was to compel the defendant, the Board of Medical Supervisors of the District of Columbia, to grant the relator a license to practice medicine and surgery in the District of Columbia.

The statute regulating the practice of medicine and surgery in the District of Columbia authorizes and directs said board to license to practice medicine and surgery in the district, without examination, any applicant for such license who has been engaged in the practice of medicine and surgery in any other jurisdiction (state, etc.), on condition, among other things, that the applicant acquired the right to practice medicine and surgery in such jurisdiction under conditions equivalent to those with which he would have had to comply in order then to have practiced medicine and surgery in the District. "And said Board of Medical Supervisors is further authorized to determine all matters of fact required to be determined in the execution of the provisions of this section."

It was conceded that the material provisions of the Maryland statutes were the same as those of the District of Columbia; that the relator was regularly admitted to practice medicine and surgery in Maryland, and practiced thereafter for a period of two years; that he presented satisfactory evidence of good character, paid the fees required and complied with all the requirements of the statute. The board, however, claimed the power, by rules and regulations, to determine what should constitute "conditions equivalent" under the statute, before reciprocal relations between Maryland and the District of Columbia could be said to exist. But the court thinks equivalent conditions exist under this statute by virtue of the provisions of the law, and not under the rules of the board.

The rules which the board are authorized to make are, the court says, for its guidance in carrying into effect the provisions of the law in the District of Columbia, and not in the State of Maryland. The Maryland board may have an entirely different set of rules for carrying into effect substantially the same statute as that of the District of Columbia; but that is a mere matter of local procedure, which cannot affect the reciprocal rights of practitioners of one jurisdiction to practice in another, provided they meet the requirements of the board in the state where originally admitted and the provisions of the statute in the jurisdiction where they desire to practice. If the contention of the board be correct, it lies within its power to prescribe conditions of admission to the boards of all states and territories in order to entitle any of their licentiates to practice in the District of Columbia, thereby absolutely annulling the express provisions of the statute. It is against public policy to place such arbitrary power anywhere, much less in a mere medical board.

The object of this statute was to open the doors to reputable practitioners, and, to this end, give full faith and credit to the acts of the board of a neighboring state having equivalent conditions, until it is clearly shown that the applicant does not come up to the requirements of the statute as to two years' practice or good moral character, or that he wrongfully obtained his original license to practice, either through his own fraud or through the fraud of the board. These are matters which the board would have authority to investigate, matters of fact on which they could pass, and their decision would not be subject to review in a proceeding of this kind. But no such showing was here made. The whole action of the board was based on the fact that they had a different system of grading for admission to practice than that adopted by the Maryland board. About the most inequitable test of ability that can be applied is the comparison of examination grades derived from either the same or different sources. It would certainly be dangerous to make arbitrary power dependent on such a deceptive test. It is well settled that licensing boards are not vested with personal or arbitrary power, but are subject to the control of the courts when it appears that they have acted arbitrarily in refusing a license.

This power is inherent in the court, and no statutory authority is necessary for its exercise.

If a board or officer deprives a citizen of a legal right, to which he is clearly entitled, and the citizen has no right of appeal or other adequate remedy, the proper court will review the action and see that justice is done and legal rights preserved. The rule is well expressed in Spelling on Injunctions and Other Extraordinary Remedies, 2d Ed., sec. 1433: "But, while the action of an officer clothed with a discretion is not reviewable, if exercised on matters left to his discretion, yet his judgment as to the extent of his discretion under the law, and the matters on which it may be exercised, are reviewable on mandamus; and where a discretion is abused, and made to work injustice, it may be controlled by mandamus."

The answer of the board totally failed to set forth any legal justification for its refusal to grant the relator a license. The rules and regulations of the board were its sole defense. As the court has observed, this was insufficient. The relator had complied with all the requirements of the law and the board had no discretion left in the premises. It was its duty to have acted favorably on the application. Refusing to do so, the relator availed himself of the only remedy afforded him, and the court below should have sustained the relator's demurrer to the board's answer to his petition and issued the writ of mandamus he asked for to compel the board to grant him a license to practice medicine and surgery in the District of Columbia.

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Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

September 24

1 Preliminary Report on Ehrlich-Hata Preparation, "606," for Cure of Syphilis. M. S. Kakels, New York.
2 *New Treatment for Chronic Intestinal Putrefactions by Means of Rectal Instillations of Autogenous Bacteria and Strains of Human *B. Coli Communis*. A. Bassler, New York.
3 *Possible Second Attack of Acute Anterior Poliomyelitis in the Same Patient. A. A. Eshner, Philadelphia.
4 *Three Unusual Cases of Retropharyngeal Abscess. A. Spingarn, Brooklyn, N. Y.
5 Library Ventilation. W. A. Evans, Chicago.
6 Psychotherapy; Its Place; Its Uses. B. C. Loveland, Syracuse, N. Y.
7 *Culture of Lactic Acid in Treatment of Chronic Specific Urethritis. G. A. Persson, Mount Clemens, Mich.
8 Plea for the Study of Geriatrics. I. L. Nascher, New York.
9 *Practical Inexpensive Aseptic Blood-Sticker. C. C. Bass, New Orleans, La.

2. Treatment for Chronic Intestinal Putrefactions.—After having studied the problem experimentally and then trying it out clinically in thirteen cases, Bassler is convinced that in cases of chronic intestinal putrefaction wherein such conditions as carcinoma, colonic obstruction, abnormal organic disease of the pancreas or stomach, or gastrointestinal atrophy, etc., are not responsible for the condition, much benefit can come from raising the content of *B. coli communis* in the gut by instillation of either the autogenous mixed forms or strains from other individuals. An individual who has high Gram-positive stools can by the autogenous mixed or *B. coli* instillations quickly have the running proportion between the Gram negatives and Gram positives raised to a proportion equivalent to normal, this being due to raising the number of *B. coli* and also to diminution in the putrefactive Gram positives as the first-named become more numerous. With this more equal proportion between the two types of organisms, the conjugate sulphate of the urine diminishes and substantial improvement occurs. From his experience Bassler is led to believe that these injections are a valuable method of treating these patients, being quick and effective in the majority, and not harmful in any. It is his belief that when anatomic conditions causing stagnation exist the results from these treatments are not capable of giving such good or substantial benefit. As regards the permanency of the benefit brought about it is apparent that in about half of the patients who do not respond to simple treatments, the condition clears up inside of from one to three months of this treatment, but that the other half may not remain substantially benefited even when the instillations are kept up for longer periods. These latter patients show relapses when the instillations have been stopped for a week or more, quickly responding again when the injections are re-established. Bassler thinks it probable that in the relapsing cases some permanent anatomic mischief preventing the establishment of a normal bacterial intestinal condition is present, which is either the cause of the development of the condition in the first instance and then of its prolongation, or that there is present some anatomic or permanent functional change affecting normal secretions and motility of the digestive canal in asthenic ways. All patients with putrefactive conditions should first be treated by the routine methods of treatment for those conditions (diet, hygiene, tonics, etc.) before instituting the instillations. When, however, the latter are begun, the autogenous mixed bacteria should first be used, always employing fresh specimens of stools for inoculation of the media. This treatment should be kept up for about 4 weeks before a change to the strains of *B. coli* is employed for a length of time; when benefit has been established autogenous mixed bacteria may again be used. If no benefit is noted on the *B. coli* alone the *B. lactosus aerogenes* may also be added to them, the two grown together in the single media, and these tried for a length of time. If after these, no sustained or apparent benefit is achieved, then there is present some anatomic and permanent complication affecting the function of the gut, and the best he has hoped for is a resort to surgery in some of the cases, or a longer interval continuation of instillation of whatever form of culture has shown the best results in that particular case.

3. Acute Anterior Poliomyelitis.—On a warm day in August, 1891, when 25 months old, after an indiscretion in diet, and without antecedent traumatism, Eshner's patient was seized with fever lasting three days, and associated with pain in the right leg and the back. There had been no vomiting and no diarrhea. On the fifth day the right lower extremity was found to be paralyzed, without apparent alteration in sensibility. The paralysis increased in severity for a week, and then it began gradually to diminish. The upper extremities, the left lower extremity, and the face were unaffected. The general nutrition was preserved, but the right lower extremity was moderately wasted. Intelligence was good and sensibility was unaffected. The gait was wobbling, the feet being held rather far apart in walking. There were no contractures and no deformity. The knee-jerk was normal on the left, enfeebled on the right. The circumference of the right leg was 7¼ inches, that of the left 7½ inches. The muscles of the right leg responded less well to faradic stimulation than did the muscles of the left leg, but there was no degenerative reaction. The patient occasionally had nocturnal enuresis, but there was no evidence of rachitis. Under treatment with massage and electricity for eight months practical recovery took place. Eleven years after this illness, in March, 1903, a day after a fall, resulting in injury to the left shoulder and the left elbow, the patient developed weakness in both hands, more marked on the left. She had not been feeling well at this time and was "nervous," although she was attending school and had no fever or nausea or vomiting. While the symptoms manifested were those of acute anterior poliomyelitis, Eshner points out that some one might attribute them to peripheral nerve injury in consequence of the fall. The development of the symptoms a day following and not immediately after the accident, the involvement of both hands primarily, even though in slight degree and but transitory in character on the uninjured side, the absence of sensory alterations, certainly entitle the possibility of a spinal, rather that a peripheral lesion—a poliomyelitis rather than neuritis—to serious consideration.

4. Three Unusual Cases of Retropharyngeal Abscess.—The first of these cases of retropharyngeal abscess was associated with evidence of pressure on the pneumogastric nerve. The two striking points in connection with this case were the initial torticollis and external cervical adenitis, and the remarkably low pulse (60) that could be explained only on

the basis of pressure on the pneumogastric. The second case was followed by general pyemia and death. The history of this case was typically that of a general pyemia following a retropharyngeal abscess, and strikingly emphasizes the importance of making a prompt diagnosis of the latter condition and of instituting early drainage. The third case was associated with edema of the glottis. The patient recovered.

7. **Treatment of Chronic Specific Urethritis.**—Persson found that secretions present in the infected urethra inhibit the growth of a common strain of lactic acid bacillus. Suspension in physiologic salt solution of lactic acid bacilli grown on slant agar was injected into the infected urethra and cultures obtained by means of a sterile platinum loop from the urethra—these cultures were planted in milk at the following intervals: First culture, 1 minute after injection; second culture, 5 minutes; third culture, 10 minutes; fourth culture, 15 minutes; fifth culture, 20 minutes; sixth culture, 30 minutes. After 48 hours' incubation there was complete coagulation in cultures 1 and 2; slight coagulation in culture 3; in culture 4, acidity but no coagulation; in cultures 5 and 6, no growth. It was observed that the disappearance of the gonococci bore a constant relation to the length of time the lactic acid bacilli retained their virulence in the urethra. In each of 6 unimproved cases the bacilli were killed almost immediately after injection and although several different cultures were tried, none proved effective. Cultures of lactic acid bacilli grown in nucleinic acid media, retain virulence when injected into the infected urethra for a much longer period of time. In a number of instances cultures which coagulated milk in 36 hours were obtained from the urethra of the patients under treatment 10 hours after the injection was made.

9. **A Practical Blood-Sticker.**—This sticker is made of a two-dram vial, cork, and a straight surgical needle. The eye end of the needle should be stuck into the small end of the cork. The needle should not be stuck through the cork. The vial contains alcohol or some other antiseptic solution.

New York Medical Journal

September 24

10 Ambulance Surgery—Its Problems. T. A. Cheatham, New York.
11 Epistaxis in Relation to Various Constitutional Diseases. H. Hays, N. Y.
12 Ether. J. B. Bogan, Washington, D. C.
13 Treatment of Peritonitis. M. F. Goldberger, New York.
14 The Munich Psychiatric Course of 1909. L. Casamajor and M. J. Karpas, New York.
15 *Standardization of Blood Pressure. A. K. Sallom, Philadelphia.
16 *Dr. Pohly's Cases of "Anemic Ulcer" of the Throat. G. F. Lydston, Chicago.
17 Aconite. J. Knott, Dublin, Ireland.

15. **Standardization of Blood Pressure.**—After the most careful investigation Sallom found that normally the blood pressure does not vary more than about 0.3 millimeters of mercury and to be expressed by the following equation:

$$\text{mm. Hg.} \div (\text{W.C.} \times \text{C.}) = \text{P.};$$

in which mm. Hg represents the height of the column of mercury; W. C. the width of the cuff employed; C. the circumference of the arm, and P. the pressure. He says that it is a well-known fact that the pressure exerted by any fluid depends entirely on its height and the size of its base. The size and shape of the vessel play no part whatever. With this in mind it at once becomes evident that the area on which the pressure is exerted plays a most important rôle and must be taken into consideration with every observation. Of course, this is obtained by multiplying the width of the cuff by the circumference of the arm. Knowing the height of the column of mercury and the area or base on which the pressure is exerted it at once becomes a simple mathematical problem to compute the actual pressure employed. For example, in the case of a person, age 22, the circumference of the arm being 8 inches, and the width of the cuff 3 inches, therefore:—8×3=24 sq. in.=area over which the pressure is exerted.

The systolic pressure in this case was found to be 125 mm. Hg. If, therefore, 125 millimeters of mercury were sustained over an area of 24 square inches, 1 square inch will support a column of mercury 1/24 of 125 mm. Hg or 5.21 mm. Hg. By computing in this manner the actual pressure employed the results have been startling and of great importance.

Age has been found to have no influence on blood-pressure, it being the same in the child and the adult. In making this statement Sallom says that he is aware of the great importance laid by all observers on age. The error is due to the fact that the circumference of the arm was not taken into consideration. It being smaller in the young the blood-pressure readings were necessarily lower than in the adult, which, however, when standardized gave the same ratio for each square inch. The same is true in regard to sex. It is somewhat inconvenient to speak of the pressure in terms of 4.82 mm. Hg per sq. in.; 6.25 mm. Hg per sq. in., etc. On this account and in order to place the blood-pressure readings on a definite standard it has been found convenient to express them in terms of units. Such a method is simple and practical. It is obtained by taking the figure or figures before and the first figure after the decimal to represent the number of units. For example:—4.82 mm. Hg per sq. in. would be spoken of as 48 units; 6.25 mm. Hg per sq. in. as 62½ units, etc. By such a system the readings are simplified and we become better able to appreciate slight differences.

16. **Dr. Pohly's Cases of "Anemic Ulcer" of the Throat.**—Lydston takes exception to Pohly's diagnoses of anemic ulcer in three cases on the ground that the cases were not investigated sufficiently. He seems to be inclined to regard them as cases of syphilis.

Boston Medical and Surgical Journal

September 22

18 Place of Tuberculin in the Immunization of Urogenital Tuberculosis. G. P. Sanborn, Boston.
19 Acute Pancreatitis. P. E. Truesdale, Fall River, Mass.
20 *Influence of Exhaustion On Puerperal Morbidity. J. T. Williams, Boston.
21 Value of Tuberculin in Tuberculosis of the Urinary Tract. H. Cabot, Boston.
22 Bacterial Vaccines in Progenic Infections of the Urinary Tract. H. F. Hartwell, Boston.

20. **Influence of Exhaustion on Puerperal Morbidity.**—A review of the clinical records of 5,000 cases has shown Williams that it is evident that exhaustion during labor has a distinct influence toward increasing puerperal morbidity. He says:

1. A temperature of 100 F. or above occurs at some time during the first twelve hours after delivery in about 20.5 per cent. of all cases.
2. The temperature curve during this period in the majority of cases corresponds with the diurnal variation.
3. This elevation of temperature does not necessarily correspond to the duration of labor, but probably does to its severity.
4. The pulse-rate is a less reliable index of exhaustion than the temperature. It most commonly falls during the first twelve hours, a rise in the majority of cases accompanying a corresponding rise of temperature.
5. Puerperal morbidity, with the exception of mastitis, increases in direct proportion to the duration of labor.
6. This increase affects equally all the more common complications of the puerperium.
7. Cases in which there is an elevation of temperature during the first twelve hours after delivery are followed by a higher morbidity than those in which there is not; and when this temperature reaches to 101 F. or over, the subsequent morbidity is 38.09 per cent.
8. An elevation of pulse at the end of labor is of comparatively slight prognostic importance from this standpoint, but is followed by a slightly increased morbidity.
9. The morbidity is greatest after the high operations, but here, as is also true of the low operations and spontaneous delivery, the morbidity increases in direct proportion to the duration of labor.
10. The morbidity after low forceps is less than after spontaneous delivery, presumably because labor is shortened and exhaustion lessened.

Lancet-Clinic, Cincinnati

September 17

23 *Teaching of Clinical Psychiatry: A Medical Educational Problem. F. P. Norbury, Kankakee, Ill.
24 *The Modern Physician; His Successes; His Failures; His Future. J. K. Mitchell, Philadelphia.

23, 24. Abstracted in The Journal, Oct. 1, 1910, pp. 1219, 1220.

Journal Missouri State Medical Association, St. Louis

September

25 *Simple Bursitis. J. F. Binnie, Kansas City, Mo.
26 Obligation of Parents and State to Protect the Rising Generation from Infections of Prevalent Social Diseases. M. P. Overholser, Harrisonville.
27 Conservation by the Roentgen Ray. W. L. Brosius, Gallatin, Mo.

28 Etiology and Treatment of Carbuncle. W. Frick, Kansas City, Mo.
29 My Friend the Osteopath. J. J. Gaines, Excelsior Springs, Mo.
30 The Physician as a Witness. J. Ashley, Bloomfield, Mo.
31 Owen Bill for the Establishment of a Federal Department of Health, and Its Opponents. S. A. Knopf, New York.

25. **Simple Bursitis.**—Binney says that a chronic bursitis may recover when rest is given, but the gross anatomic changes in the walls of the bursa and in its surroundings are usually so great and so well established that more active treatment may be necessary. Various irritating or alterative liquids or emulsions have been injected into bursæ and have often given good results, but such treatment must be used with great caution, as bursæ frequently communicate with joints and such treatment may produce a dangerous arthritis. Excision is the treatment of choice in chronic bursitis; it not only gives the best prospect of a prompt and permanent cure of the simple, non-infective variety of the disease, and is also the best possible method of treatment if the lesion is due to tuberculosis or similar infection.

Journal Minnesota State Medical Association and Northwestern Lancet, Minneapolis

September 15

32 Italian Surgery. W. J. Mayo, Rochester, Minn.
33 Health Officer: Physician and General Public in Enforcement of Health Regulations. F. M. Smersh, Owatonna, Minn.
34 Plea for Better Education of the Young in Sexual Matters. O. F. Way, Claremont, Minn.

New York State Journal of Medicine

September

35 *Unusual Case of Hysterosalpingostomy. C. Jewett, New York.
36 *Duty the Medical Profession Owes Women with Cancer. W. B. Chase, Brooklyn.
37 *Importance of Care in Closing the Abdominal Wound. L. R. Broun, New York.
38 *Treatment of Pott's Disease. B. H. Whitbeck, New York.
39 Indications for the Technic of the Operations for the Induction of Labor, Persistent Occipito-Posterior Positions, and Craniotomy. G. L. Brodhead, New York.
40 *Causes of Death from Shock by Commercial Electric Currents, and the Treatment. E. M. Stanton, Schenectady, and A. Krida, Albany.
41 Types of Scarlet Fever and Treatment. C. F. Burrows, Syracuse.
42 Hodgen Suspension Treatment of Fracture of the Femur. W. Brady, Elmira.
43 Extracts from *Chirurgia Curiosa* by M. G. Pusmannus Between the Years 1650 and 1705. J. H. Martin, Binghamton.
44 Why the Marriage of Defectives Should Be Prevented When Possible. W. T. Shanahan, Sonyea.
45 Bacteriologic Findings in Fifteen Cases of Epidemic Cerebrospinal Meningitis. S. R. Klein, New York City.
46 City Hospital or Country Home? H. A. Gates, Delhi.

35. **Unusual Case of Hysterosalpingostomy.**—The uterus and tubes in Jewett's case were exposed through a short median abdominal incision. The inner portion of each tube, about one-third its entire length, was found impervious, being reduced to a mere cord. The outer two-thirds was normal. The malformation was believed to be congenital. Each tube was resected from the uterine cornu and the entire atresic segment removed, care being used not to injure the vascular supply of the sound portion remaining. The fundal incision was lengthened transversely till the endometrium was easily accessible. The proximal end of the sound segment was split for one-half inch and each flap thus formed was fixed with a single catgut suture to the uterine mucosa close to its cut edge. The uterine musculature and peritoneum were then closed securely, except where traversed by the tube, and the latter was still further secured by two or three sutures passed superficially through the uterine wall and engaging the peritoneal coat of the tube. Free communication through an oviduct of ample lumen was thus established between each ovary and the uterine cavity. The fundus was restored to its normal position by the round ligament operation of Webster and the abdomen closed. The patient was out of bed within less than two weeks.

36, 37, and 38. Abstracted in THE JOURNAL, Feb. 27, 1910, pp. 732 and 735.

40. **Death from Electric Currents.**—Stanton and Krida claim that the two great causes of death are cardiac fibrillation and respiratory paralysis. Low-tension currents tend to kill chiefly by producing cardiac fibrillation. As the tension is increased the effect on the heart becomes less pronounced, but at the same time the effect on the central nervous system becomes more and more certain as the tension is increased so that in the case of the high-tension currents death is more likely to be caused by respiratory failure, although if the contact is prolonged the heart is also stopped. The authors have been unable to find any reliable data concerning the action of commercial currents of more than 4,500 volts, but all evidence points to the central nervous system as being the chief sufferer from the effects of currents of more than 4,800 volts. Cardiac fibrillation is fatal under known methods of treatment. In cases of simple respiratory paralysis, the patient may be kept alive by artificial respiration until the nervous system recovers from the effects of the shock.

Journal of Ophthalmology and Oto-Laryngology, Chicago

September

47 *The Economic Value of Family Physician Refracting. L. Connor, Detroit.
48 Intubation of the Larynx, With Suggestions Regarding Anaphylaxis. F. E. Waxham, Denver.

47. Abstracted in THE JOURNAL, April 16, 1910, p. 1333.

Bulletin Johns Hopkins Hospital, Baltimore

September

49 *Use of the Roentgen-Ray in Diagnosis of Pulmonary Tuberculosis. C. L. Minor, Asheville, N. C.
50 *Effect of Diminished Blood Supply to the Intestines On the General Circulation. W. T. Longcope, and A. T. McClintock, Baltimore.
51 *Physiologic Mechanism of Anaphylactic Shock. W. H. Manwaring, Baltimore.
52 "Cobra-Lecithid." A Summary. W. H. Manwaring, Baltimore.
53 *Peculiar Degeneration Found in Heart Muscle Cells. J. H. Hewitt, Minneapolis, Minn.
54 *Bactericidal Power of Blood Serum of a Typhoid Carrier, Before and During a Course of Active Immunization with Typhoid Vaccines. Patient Ceases to Be a Carrier. F. M. Meader, Syracuse, N. Y.
55 Association of Psoriasis with Jaundice. W. H. Higgins, Clifton Springs, N. Y.
56 Pemphigoid Eruptions in Typhoid. W. H. Higgins, Baltimore.
57 Acromegaly and Goiter. W. E. Grove, Clifton Springs, N. Y.

49. **Roentgen-Ray in Diagnosis of Pulmonary Tuberculosis.**—As a means of early diagnosis the fluoroscope, says Minor, while useful, is, save in the case of bronchial gland shadows, by no means equal to an expert use of standard physical diagnostic methods. In Germany where several distinguished diagnosticians have used the Roentgen-ray freely, extreme claims for its early diagnostic value are not so common as in this country. Hence, the statement that any given case was negative on physical examination and showed shadows with the Roentgen-ray is of no great value unless one knows who made the physical examination. Systematically used, it will be found to throw wonderful light on the work, and there are few cases, save the extremely incipient ones, in which it is not useful. Further, as has already been noted, there is no other procedure which can give such information as to the topography of the disease, while again and again it will call to one's attention slight foci of trouble which would otherwise have been overlooked. There is no diagnostic measure in which it is more essential to master fully the use of apparatus, and the first few months of fluoroscopy will be well spent if in them one thoroughly masters the idiosyncrasies of the electrical apparatus which one has to use.

50. **Effect of Diminished Blood Supply to the Intestines on the General Circulation.**—The author found by experimentation that compression of the superior mesenteric artery and celiac axis gives rise constantly to an elevation of general blood pressure which may last for at least an hour. This is not dependent on a reflex for there is no compensatory constriction of the other vessels of the body and the rise in pressure occurs after section of the splanchnic nerves. On the contrary, there is a slight compensatory dilatation of the other organs of the body which, however, is not sufficient to compensate for the increased blood pressure. Intravenous injections of salt solution, either through diminishing the viscosity of the blood or by dilating the vessels or through both means, increase the efficiency of the anastomosis of the splanchnic area after ligation of the superior mesenteric artery and celiac axis. Intravenous injections of blood do

not have this effect and therefore result in a sustained elevation of blood pressure due to the increased bulk of fluid in the general circulation. The rise of blood pressure following constriction of the superior mesenteric artery and celiac axis is due to an increased amount of blood in the general circulation. The pressure remains elevated until the excess of blood accumulates in the ramification of the splanchnic vessels by way of the collateral anastomosis.

51. **Physiologic Mechanism of Anaphylactic Shock.**—Manwaring defines the acute anaphylactic reaction in dogs as an explosive auto-intoxication of hepatic and intestinal origin, which is modified, inhibited and overcome, by a more or less efficient antianaphylactic mechanism, part, at least, of which is situated in other organs. As to the nature of this hypothetical auto-intoxication, whether it consists of split or conjugation products of the injected proteid, of liberated hepatic or intestinal enzymes, of an unusual amount of the normal internal secretion peculiar to anaphylaxis, can only be determined after extensive histologic, chemical and biochemical studies. The facts at present do not warrant the formation of even a working hypothesis on this point.

53. **Peculiar Degeneration Found in Heart Muscle Cells.**—The degeneration in question was seen in tissue fixed in 10 per cent. formalin and in tissue fixed in Zenker's fluid. In sections stained with hematoxylin and eosin it is readily recognized with the low power lens and appears as a small round, oval, or irregular pale blue area inside of a single muscle cell. No particular cells or particular regions of the heart muscle were observed in which this degeneration seemed to occur more markedly than in other portions. It occurs where there is marked proliferation of connective tissue and where there is evidence of pressure atrophy; it occurs also where there is no connective tissue proliferation and the cells appear slightly hypertrophied. It also occurs near the endocardium, near the pericardium, and deep in the heart muscle. In some of the cells in which this degeneration occurs the nuclei are quite prominent, in others no nuclei are to be seen. With the high-power lens these degenerations show a slight bluish mottling, somewhat irregularly defined. Across some of them may be seen fine pink-stained lines that are continuous over into the muscle cell. These are apparently unaltered muscle fibrillæ. They sometimes occupy only a portion of the cell, at other times almost the whole of the cell is filled with blue staining material, but always enough of the cell remains to show that it is a heart-muscle cell.

Besides hematoxylin and eosin, the only distinctive stain Hewitt has so far found for these degenerations is iodin in the form of Lugol's solution. These areas when so stained and examined in water appear of a terra cotta pink color, somewhat mottled and rather irregularly defined, fading away gradually at the periphery into the substance of the cell. Other cells are seen in which this degeneration appears, when stained with Lugol's solution and examined in water, of a blackish brown color with a dirty pink base. On washing again in water these areas become more and more pink. In many of the pink-stained areas brownish areas may be seen. On treating sections stained with Lugol's solution with water to which a mere trace of ammonia is added the pink and brownish colors in these degenerated areas disappear; treating sections with slightly acidulated water produces no particular change. As to the nature of this degeneration, Hewitt thinks that it is that of a hyaline change allied to hydropic degeneration with the presence of some mucin.

54. **Bactericidal Power of the Blood Serum of a Typhoid Carrier.**—The results of Meader's work may be summarized briefly as follows: 1. The bactericidal power of the blood-serum of a typhoid carrier may be that of a normal person. 2. A typhoid carrier may be actively immunized to *B. typhosus* by the use of autogenous vaccines, and in so doing the bactericidal substances in the blood may be markedly increased. 3. A typhoid carrier if vaccinated so as to bring about an increase of bactericidal substances may cease to harbor the typhoid bacillus. 4. The best therapeutic dose, from an investigation of one case, seems to be from 75 to 400 million

Vermont Medical Monthly, Burlington

September

58 Carcinoma. H. C. Tinkham, Burlington.
59 Chronic Parenchymatous Nephritis. J. S. Horner, Burlington.
60 Owen Bill for the Establishment of a Federal Department of Health, and Its Opponents. S. A. Knopf, New York.
61 Gall-Stones. E. H. Ross, St. Johnsbury.
62 Relation of Laboratory Examinations to Diagnosis of Tuberculosis. B. H. Stone, Burlington.

Colorado Medicine, Denver

September

63 Digestion and Indigestion. C. B. Dyde, Greeley.
64 Gunshot Wounds of the Abdomen. H. R. Bull, Grand Junction.
65 *New Treatment for Abdominal Surgical Shock. J. R. Hopkins, Denver.
66 Life-Insurance Examination Records. C. Powell, Denver.
67 Relation of Vaccine Therapy to Surgery. B. H. Matthews, Denver.
68 Simulation of Mastoid Disease. E. W. Fox, Trinidad.
69 Indican in the Urine. M. Kleiner, and I. S. Kleiner, Denver.
70 *An Unusual Case of Lead Poisoning. E. W. Lazell, Denver.

65. Abstracted in THE JOURNAL, Feb. 26, 1910, p. 742.

70. **Unusual Case of Lead Poisoning.**—Three months before the onset of foot drop, the patient had suffered an attack of lobar pneumonia and had been very ill. Many years previous to this, he had had occasional attacks of "rheumatism." With the exception of the rheumatism he had not been ill for 16 years. This sickness had been an unusually severe attack of lead poisoning which he had developed while working "in a sheet lead factory" where he had been foreman. After repeated attempts to continue his work there he had been obliged to resign a very lucrative position and discontinue this kind of work. He had had "colic" so severely that the physician in charge had despaired of his life and had expected him to die. Recovery had been tedious and he had never been well since. Still in the last years he had not shown symptoms of lead poisoning and had considered his ill health due to rheumatism.

It was difficult to imagine this present foot drop to be directly due to "leading" sixteen years ago, and the history of his past illness was again reviewed. Special inquiry was made of the attack of pneumonia, which condition the present trouble has so closely followed. Apparently he had had a frank attack of lobar pneumonia but said that the physician in charge thought the lung had not returned to its normal condition, and that he had taken medicine for some time after he was up and about. He was asked to describe this medicine which he did as follows: "The medicine was bitter drops, made my nose run as though I had the hay fever, and I took ten drops after each meal. The medicine formed a white scum over the neck of the bottle and turned the label brown." The explanation of the case seemed clear to Lazell. The lead deposited sixteen years before in some insoluble form in the bones, had been thrown into solution by the iodids given for an unresolved pneumonia and acute lead poisoning had resulted. The patient was given a good prognosis, saturated with sodium iodid and made a complete recovery.

Laryngoscope, St. Louis

September

71 Value of Vaccine Treatment of Chronic Inflammatory Disease of the Accessory Sinuses of the Nose. H. S. Birkett and J. C. Meakins, Montreal.
72 Vaccine Therapy in Otology. H. O. Reik, Baltimore.
73 Id. B. A. Randall, Philadelphia.
74 Present Status of Vaccine Therapy in Diseases of Nose, Throat and Ear. J. A. Patterson, Colorado Springs.
75 Autovaccines in Nasal Accessory Sinus Infection. F. Brawley, Chicago.
76 Tuberculous Meningitis Following Purulent Otitis Media and Complicated by Anterior Poliomyelitis and Measles. W. C. Phillips, New York.
77 Instrument for Direct Intubation of Larynx. H. P. Mosher, Boston.
78 Direct Laryngo-Tracheo-Broncoscopy, and Esophagoscopy. L. J. Goldback, Baltimore.
79 Routine Use of Ligature in Tonsillar Bleeding with Description of Technic. L. Cohen, Baltimore.
80 Total Extirpation of Tonsils from Experience of Five Hundred Cases. W. E. Chamberlin, Cleveland.
81 Etiologic Relation of Diseases of the Ear, Nose and Throat to Diseases of the Heart, Lungs and Blood. R. Levy, Denver.

Medical Herald, St. Joseph, Mo.

September

82 Theories of Shock. R. R. Hollister, Omaha, Neb.
83 Paresis as Compared with Syphilis of the Central Nervous System. C. R. Woodson, St. Joseph.
84 The Sixteenth International Medical Congress, Budapest. W. O. Henry, Omaha, Neb.

85 Cystic Degeneration of the Ovaries. J. H. Talboy, Sioux City, Iowa.
86 *Serotherapy of Gastric and Duodenal Ulcer. J. M. Mayhew, Lincoln, Neb.

86. Serotherapy of Gastric and Duodenal Ulcer.—Mayhew reports five cases which he treated successfully according to the method of E. C. Hort of London by the internal administration of an anti-ulcer serum. The important factors in the treatment are: 1. Absolute rest in bed is ordered from two to three weeks. 2. No drugs are given except a simple purgative. 3. Diet is dry throughout; no milk, soup or fish is allowed. Meals may be given every two hours, consisting in rotation of stale bread, yolks of lightly cooked eggs, white meat of chicken. Only liquid allowed is 10 ounces of hot water at 7 a. m., 11 a. m., and 1 p. m. The dietary is doubled in five days and on the seventh or eighth day pounded meat, lightly cooked, may be added. By the end of the second week meat forms the chief article of diet and soon a return to full diet is gained, but alcohol, soup, tea, coffee, and all starchy puddings are forbidden for six months. 4. The serum is given by mouth three or four times a day, immediately after food in one-half ounce of water. In cases of severe pain or hemorrhage 60 c.c. to 80 c.c. can be given in 24 hours. The usual dose is 10 c.c. The serum is continued for from 4 to 6 weeks. The results Mayhew has noted are: 1. Early relief from pain. This was true in all cases and allowed a generous diet in many cases much earlier than is usually considered possible. 2. Chlorosis improved rapidly. 3. Nausea and vomiting stopped earlier than in other forms of treatment. 4. Nutrition of patients was maintained at a higher level than by other methods.

Iowa Medical Journal, Des Moines

September

87 Progress in Medicine. H. B. Jennings, Council Bluffs.
88 Syphilis of the Cord. F. A. Ely, Des Moines.
89 Syphilis of the Circulatory System. W. H. Rendleman, Davenport.
90 *Syphilis Among the Insane. M. N. Voldeng, Cherokee.
91 Surgical Treatment of Infantile Paralysis. E. W. Ryerson, Chicago.
92 Infantile Paralysis. T. B. Throckmorton, Philadelphia.
93 Modern Therapy of Ethmoiditis. W. S. Windle, Oskaloosa.

90. Syphilis Among the Insane.—Voldeng collected statistics relating to syphilis among the insane in the 4 hospitals for insane in Iowa, and the following is the result for a period of 8 years from June 30, 1902 to January 1, 1910. Number of patients admitted, excluding re-admissions, 7,595; number of patients having a syphilitic history, but who did not develop paresis, 104, or 1.36 per cent.; number of cases of paresis, 346 or 4.56 per cent.; number having had syphilis or paresis, 450 or 5.92 per cent. At Cherokee, paresis was the cause of death of 13.33 per cent. of all deaths during the period.

Therapeutic Gazette, Philadelphia

September 15

94 Gonorrheal Vaccine Therapy and the Antigonococcus Serotherapy in Gonorrhea and Its Complications, Particularly Joint Involvements. L. E. Schmidt, Chicago.
95 Therapeutic Measures that Have Been Successfully Employed in the Department of Orthopedic Surgery in the Jefferson Medical College Hospital. H. A. Wilson, Philadelphia.
96 Night-Feeding of Patients, an Important Factor in the Hygienic-Dietetic Method of Curing Consumption. A. S. Ashmead, Canadensis, Pa.
97 Blood Dyscrasia Following Injection of Calomel. W. G. Elmer, Philadelphia.

Archives of Internal Medicine, Chicago

September

98 *Pathology and Bacteriology of Acute Anterior Poliomyelitis. H. E. Robertson and A. J. Chesley, Minneapolis.
99 *Phagocytosis of Red Blood-Cells After Transfusion. J. G. Hopkins, New York.
100 *Prognostic Significance of Pulse-Pressure Changes During Hemorrhage. C. J. Wiggers, Ann Arbor, Mich.
101 Multiple Non-Inflammatory Necrosis of the Liver with Jaundice in Chronic Cyanosis. H. Oertel, New York.
102 *Case of Trichinosis; Trichinella Found in Blood Taken from an Ordinary Ear Puncture. G. Cross, Minneapolis.
103 *Prevalence of Uncinariasis Infection in the Better Class of Southern White People. J. G. Gage and C. C. Bass, New Orleans.
104 *Diagnostic Value of the Intracutaneous Tuberculin Test. G. H. Evans and J. L. Whitney, San Francisco.
105 *Has Ovotherapy, as Now Practiced, an Experimental Basis? R. T. Frank, New York.
106 *Anterior Poliomyelitis. F. P. Gay and W. P. Lucas, Boston.

98. Pathology and Bacteriology of Acute Anterior Poliomyelitis.—Acute anterior poliomyelitis is a specific infectious disease characterized pathologically by general toxemia affecting the parenchyma of the heart, liver and kidneys and the lymphoid tissues of the body, but spending itself locally on the structures of the spinal cord. The authors found that grossly the cord is congested and on transverse section shows softening and often hemorrhages in the gray matter of the anterior horns. In the cord the infectious agent is located in the perivascular lymph-channels of the anterior portions, especially invading the gray matter, but extending to the white matter and pia and occasionally to the posterior horns. The brain stem and basal ganglia may be involved. In the cord the medulla and cervical and lumbar swellings are particularly affected.

The characteristic lesion consists of collections of cells in the peri-vascular and pial lymph-channels and tissue spaces of the anterior horns. Of these cells the polymorphonuclear leukocytes appear early and are relatively few in number. They are soon displaced by endothelial cells arising from proliferation of the lining and endothelium and lymphocytes coming from the blood and lymph streams. Edema of the interstitial tissue and degeneration and destruction of the ganglion cells are always present. The vessels are congested, their walls degenerated, and the capillary branches in the gray matter are irregularly distended and often ruptured, giving hemorrhages, which always intensify markedly the amount of destruction. Thrombosis was not observed. Early degeneration of nerve fibers from the anterior roots is a constant feature. Stains for micro-organisms were uniformly negative.

99. Phagocytosis of Red Blood-Cells After Transfusion.—Immediately following transfusion in a patient suffering from an extreme anemia, resembling the primary pernicious type, smears of the peripheral blood made by Hopkins showed great numbers of the polymorphonuclear neutrophil leukocytes containing red blood-cells. About six hours after the operation the patient became comatose, developed hemiplegia and died three hours later. Hopkins believes that the shape, size and staining properties of the ingested red cells make it seem probable that many of them were from the donor; while the fact that the phagocytes were so numerous and that many of them were atypical, makes it certain that some, at least, were from the recipient; so that what was observed was probably a phagocytosis of the transfused red cells by the phagocytes of the recipient. This might be explained in two ways: As a washing out into the peripheral blood of phagocytes from the blood-destroying organs, or as a phagocytosis due to the presence of hemoposonin in one of the serums. In regard to the first possibility, there is ample evidence that some such "washing out" of bone marrow elements occurred, in the presence of numerous erythroblasts and the bone-marrow giant cell. Moreover, there are two factors present which are known to increase the phagocytosis in these organs, pernicious anemia and transfusion.

100. Pulse-Pressure Changes During Hemorrhage.—While there are interfering factors which may at times mask the significance of pulse-pressure changes, Wiggers believes that the deduction may be drawn that many cases of hemorrhage must occur in practice in which these pulse-pressure changes may be of value in following the course of bleeding. The following series of procedures may then be recommended for following the course of a suspected or diagnosed internal hemorrhage:

1. Eliminate so far as possible psychical factors in the patient by the administration of the customary dose of morphin.
2. Determine the systolic and diastolic pressures by means of the sphygmomanometer at intervals of not more than ten minutes, and more frequently if possible. By subtraction obtain the pulse-pressure, and also determine the rate of the pulse and respiration.
3. Tabulate the data as the observations continue.

If the respirations undergo little or no change, the following deductions may be drawn: (A) A progressive decrease in pulse-pressure and decrease in the product of the pulse-pressure and the heart-rate indicate a continuance of the bleeding. (B) An increase of both, if permanent, after several determi-

nations, indicates a cessation of hemorrhage. (C) A temporary increase of both, followed by a marked decrease on subsequent examinations, indicates an exacerbation. If it is true, however, that such determinations possess a clinical value, the fact should be capable of demonstration in a similar manner on animals.

Wiggers says that he has not yet had time to test his skill in following the course of a sufficient number of such hemorrhages to draw final conclusions, but the results incorporated in a table appended give an indication of the close correspondence in a number of cases. In these experiments hemorrhages were produced in dogs by an assistant, at intervals and times unknown to him. With maximal and minimal manometers, Wiggers determined at various intervals the data, incorporated them in the table, made his predictions, and compared them with the actual date of hemorrhage.

102. **Trichinelli Found in Blood.**—The patient had been ill since Aug. 17, 1909. On August 24 a diagnosis of trichinosis was made on the basis of edema of the face, together with a differential count, showing 9,100 white cells and 20 per cent. of eosinophils. On August 20 the white cells numbered 10,100 eosinophils, 38 per cent. On August 27 the white cells numbered 11,200, with 44 per cent. eosinophils. On the twenty-fifth and twenty-sixth the stools were examined carefully for trichinæ, but none was found. Excision of a piece of muscle for examination could not be done, and on the twenty-fifth it was determined to examine the blood for parasites and preparations were made to take a quantity of blood from a vein; it was not feasible, however, to get a needle into a vein, and, as an experiment, an ordinary puncture was made in the lobe of the ear and 1 c.c. of blood squeezed out by continued effort; this was laked with 12 c.c. of 3 per cent. acetic acid, centrifuged, and the sediment examined under low power. One trichinelli was easily found, two others were not so clearly marked.

103. **Uncinariasis in Southern Whites.**—The results of this investigation demonstrate that hookworm infection is prevalent not only among the working class and poor people, but also among the upper classes in infected districts, and that in the country and smaller towns at least 30 per cent. of young adults between the ages of 15 and 25 are infected. Judging from the number who give a history of ground itch, a much larger proportion of people under this age harbor the parasite. The authors emphasize the value of the washing and centrifugalizing method of examination in detecting mild infections. Their results would indicate that two-thirds of the mild infections are overlooked in the ordinary stool examinations.

104. **The Intracutaneous Tuberculin Test.**—The authors feel that in the intracutaneous test we have a method of more exact dosage than in the other methods of cutanous application. It has been their experience that the general reactions subsequent on the subcutaneous test have been avoided. They urge a more general application of this test, bearing always in mind that tuberculin tests, however applied, become a source of error when they are given a more prominent and important diagnostic place than painstaking and thorough search for physical signs.

105. **Has Ovotherapy an Experimental Basis?**—The result of Frank's investigation can be summed up briefly as follows:

1. Corpus luteum extract, injected intravenously in sufficient concentration, proves rapidly fatal in consequence of intravascular thrombosis.
2. Corpus luteum extract of a heterologous species, given subcutaneously, by mouth, or by a combination of these routes, does not replace the normal action of this gland of internal secretion. The injections do not suffice to "sensitize" the uterus and enable it to produce Loeb's decidnomata and do not bring about such epithelial changes as are noted after follicular rupture.
3. Corpus luteum extract injections call forth no recognizable reaction in the hypophysis.

106. **Anterior Poliomyelitis.**—This article deals with attempts to find a method of diagnosis from the blood or cerebrospinal fluid in cases of anterior poliomyelitis, both in monkeys and in human beings. The acute stage of anterior poliomyelitis, as it occurs in human beings, and as it is produced experimentally in monkeys, is characterized by the occurrence of a distinct leukopenia. The differential count shows a relative increase in number of eosinophils and lymphocytes. As studied experimentally in monkeys, the leukopenia of the acute stage is not preceded by any constant leukocyte picture. The spinal fluid in poliomyelitis monkeys shows more marked and characteristic findings. There is a marked increase in the number of cells during incubation and prodomal stages and the early days of the acute period, being highest in the prodomal stage. The increased cells are at first mononuclear in type and are later replaced by polymorphonuclear cells. A fibrin clot appears in the prodomal and early acute stages, but disappears later. These findings in monkeys agree with the findings in human beings, so far as the author's observations extend. Tests for antibodies to the poliomyelitis (blood of animal repeatedly inoculated with active and then inactivated virus) were made by means of the Bordet-Gengou fixation reaction. There was no evidence of antibodies in the serum of monkeys taken at intervals during the acute disease or in the serum of unsuccessfully inoculated monkeys. There was no evidence of the antigen in the spinal fluids of monkeys or of human beings at various stages in the disease, or in the blood-serum of monkeys suffering from the disease. These latter results corroborate and extend the negative findings of Wollstein.

Memphis Medical Monthly

August

107 Diagnosis and Medical Treatment of Thyroidism. B. W. Fontaine, Memphis.
108 The Thyroid: A Consideration of Its Disorders. B. F. Turner, Memphis.
109 Pathology of the Thyroid. L. Leroy, Memphis.
110 Surgery of the Thyroid. B. Malone, Memphis.
111 Treatment of Acute Enterocolitis. E. Rosamond, Memphis.

Journal of Biological Chemistry, New York

September

112 Peculiarities of the Proteolytic Activity of Papain. L. B. Mendel and A. F. Blood, New Haven, Conn.
113 Erepsin of the Cabbage. A. F. Blood, New Haven, Conn.
114 *Method for the Determination of Saccharin in Urine. W. R. Bloor, Boston.
115 *Estimation of Saccharin in Urine and Feces. A. J. Wakeman, New York City.
116 Manganese of the Tissues of Lower Animals. H. C. Bradley, Madison, Wis.
117 Lipase Reactions. H. C. Bradley, Madison, Wis.
118 Behavior of Molds Toward the Stereo-Isomers of Unsaturated Diabasic Acids. A. W. Dox.

114. **Determination of Saccharin in Urine.**—The method presented by Bloor is a colorimetric one, depending on the transformation of the saccharin into what is probably phenolsulphonephthalein or sulphurein, by treatment with a phenol-sulphuric acid mixture, the nitrogen having been split off during the treatment with the strong mineral acid. The color obtained is reddish in strong acid solution, purple-red in alkali and a bright clear yellow in weak acid solutions. It was first attempted to use the reaction directly on the urine, but the phenol-sulphuric acid reagent gives color with so many of the urinary constituents that the direct treatment had to be abandoned and an extraction made. In trying out the various solvents which have been suggested for the purpose it was found that benzol was the most satisfactory, in that it extracted the least foreign matter which interfered with the color. The benzol used must not leave any residue which gives a color with the reagent. Urine containing about 3 milligrams of saccharin is measured off into a 250 c.c. Florence flask, evaporated to about 5 c.c., cooled and strongly acidified with concentrated sulphuric acid (about 18 drops). Clean quartz sand is then added until the whole of the liquid is taken up. About 125 c.c. of benzol are poured in and the whole boiled gently with a return condenser for two hours, with occasional shaking. The benzol is poured off and the extraction repeated with about 100 c.c. of the solvent. After this extraction the solvent is poured off, the sand shaken out into a Buchner funnel, sucked dry and washed two or three times. The combined solvent with washings is set aside to cool to allow water to separate, then is poured through a dry filter into a clean flask. The benzol is now distilled off, using a long brass tube as condenser, until 1 or 2 c.c. is left. This remnant must be removed carefully, with gentle heat and a slow current of air, because saccharin is readily volatile

above 100 C. To the flask containing the saccharin extract are added about 5 c.c. of the phenol-sulphuric acid reagent and the whole heated at a temperature of from 140 to 150 C. for two hours. This temperature must be accurately maintained, since the speed of reaction drops off very rapidly below 140 C., while at much above 150 C., although the reaction goes more rapidly, there is danger of overheating, with destruction of part of the color. The flask is then cooled somewhat and about 150 c.c. of hot water are added.

After the syrupy residue is dissolved the solution is neutralized by the addition of sodium acetate crystals in slight excess, recognized by the disappearance of the pinkish tinge, leaving the liquid clear yellow. The mixture is allowed to stand some hours or preferably over night. The neutralized liquid is transferred to a 500 c.c. graduated flask and diluted up to the mark. A small amount (from 25 to 50 c.c.) is filtered off for colorimetric reading. This filtrate should be clear yellow, with not more than a trace of smokiness. It is then compared with the standard color in a Duboscq colorimeter, setting the standard at 20 mm. The following solutions are required: 1. Reagent: Equal parts by weight of concentrated sulphuric acid and pure crystallized phenol (equimolecular proportions with 5 per cent. excess of phenol) are stirred together until dissolved. The solution should be only slightly colored and a blank determination with the reagent should give only a negligible tinge to the solution. If crystals separate on standing they may be re-dissolved by gentle warming. 2. Standard color solution: Weigh out accurately about 3 mg. of pure saccharin into a 250 c.c. flask, add 5 c.c. of the reagent and digest at from 145 to 150 C. for two hours. Dissolve in hot water, neutralize with sodium acetate and make up to 500 c.c. Check the accuracy of the solution by comparison with other similarly treated amounts of saccharin. These should check to within 0.2 mg. The results of these experiments show that small amounts of saccharin may be determined in the urine by this method with a reasonable degree of accuracy.

115. **Estimation of Saccharin in Urine and Feces.**—In the course of his work Wakeman took occasion to modify Bloor's procedure in more or less essential details. The main points of difference from the procedure reported by Bloor are the use of ethyl acetate as a solvent instead of benzol and of lead acetate in the place of sodium acetate, and the use to some extent of different apparatus.

Old Dominion Journal of Medicine and Surgery, Richmond

September

119 Cesarean Section for Carcinoma of the Cervix. M. H. Biggs, Rutherfordton, N. C.
120 The Scope of Vivisection. L. B. Wiggs, Richmond, Va.
121 A Pontocerebellar Cyst Correctly Diagnosed, Localized and Diagnosis Verified by Operation. A. Gordon, Philadelphia.
122 Nephrolithiasis. D. T. Talley, Richmond, Va.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

September 10

1 Annual Educational Number.

Lancet, London

September 10

2 *Duty of the General Practitioner to the Deaf Child. M. Yearsley.
3 *Value of Blood-Pressure Determinations in the Toxemia of Pregnancy. H. J. Starling.
4 *Cesarean Section in Treatment of Eclampsia Gravidarum. F. J. McCann.
5 Central Origin of Some Cases of So-Called Heart-Block. J. F. Goodhart.
6 Typhoid Spread by Milk Infection, Probably by Means of a Carrier Case. H. Stott.
7 Vesicovaginal Fistula: Summary of 21 Operative Cases. W. C. Bentall.
8 Failure of Nerve Anastomosis in Infantile Paralysis. A. Stoffel.
9 *Chronic Constipation Treated by Faradism of the Large Intestine. W. J. Burroughs.
10 Case of So-Called Chronic Neurasthenia Due to Abdominal Adhesions; Operation; Recovery. F. L. Mummery and E. C. Bridges.

2. **Duty of General Practitioner to Deaf Child.**—It is claimed by Yearsley that something like 50 per cent. of the cases of congenital deaf-mutism are the result of marriage either (1) among those who have such cases, either direct or collateral, in their families, or (2) among those who are blood relations. Here, then, becomes apparent an obvious duty of the general practitioner, and one which he will not infrequently have an opportunity of bringing into action. He should, whenever the occasion occurs, do all he can to discourage such marriages. It may be, says Yearsley, that when we, as a nation, are more alive to the urgent necessity for race culture, when we more fully realize that national wealth is not gold, but healthy, normal citizens, we shall discourage consanguineous marriages in tainted families by law. Until then it will remain the paramount duty of every medical man to do his utmost in this direction and to foster in his patients the feeling that we have a bigger duty toward future generations than we have to ourselves. There is also a duty to deaf children, whether the deafness be congenital or acquired, whose defect lies, in the majority of cases, only in the absence of the sense of hearing. That duty is to impress on the parents that to obtain the best results from education by the oral system (which is the only system which can give the deaf child anything approaching normal intercourse with his more fortunate brethren), such education must begin as early as possible, while brain and larynx are still plastic; that attendance at the deaf school must be as regular as possible; and that the oral training carried out by the trained teacher of the deaf must be continued, supplemented and amplified at home by treating the child as a speaker and not a signer.

3. **Blood-Pressure in Toxemia of Pregnancy.**—For the last five years Starling has made a rule of taking the blood-pressure as often as possible of every pregnant woman under his care, especially in the last three months of pregnancy. It was impossible to secure identical conditions of observations in these cases, but the mere fact that most of the observations were made, not on patients resting in bed but on patients who either were working in their homes or else had walked to his consulting-room, would prove that these estimations of blood-pressure were too high a reading rather than too low. In spite of the conclusions arrived at by Vogeler and other writers Starling is convinced that during the whole period of normal pregnancy the blood-pressure is normal—that is, from 110 to 120 mm. Hg. Any rise of blood-pressure above 125 mm. Hg would make him suspect that the pregnancy was not quite normal and would put him on the lookout for some degree of toxemia. Any rise of blood-pressure at the commencement of and during normal labor is due entirely to the pain or muscular exertions consequent on labor.

4. **Cesarean Section in Eclampsia Gravidarum.**—The indications for operation are regarded by McCann to be the following: 1. When the fits are severe and recur in rapid succession. 2. When labor has not commenced. 3. When the cervix is difficult to dilate from elongation, hypertrophy or excessive rigidity. 4. When the mother is moribund and the fetus living and viable. 5. When labor has commenced and there is found considerable disproportion between the size of the child and that of the pelvis. 6. When the surroundings of the patient are suitable for a major surgical operation and when the services of an operator skilled in pelvic surgery can be obtained. Eclampsia, as a rule, is not encountered before the second half of pregnancy, and becomes more frequent the nearer term is approached. Zweifel has, however, reported a case occurring in the third month. When it does occur in the latter half of pregnancy the disease is usually severe, a favorable termination occurring generally in the cases in which premature labor has rapidly supervened. In such cases, when the fits are severe and rapidly succeed one another, the indication is to empty the uterus at once, and this, McCann holds, is best accomplished by the Cesarean operation, in which the bleeding resulting therefrom is also beneficial. Too much time should not be spent in such cases in attempting to dilate the cervix. Unless the cervical tissues rapidly yield to the

methods of dilation adopted it is a matter of common experience that such manipulations tend to increase the fits, and unless the procedures are carefully carried out there is further risk of septic infection. Infection has already claimed many victims in this disease. The wearing of sterile india-rubber gloves should be made compulsory for all those who engage in the practice of obstetrics, and special precautions should be taken in eclamptic cases to disinfect all instruments used.

Whatever views may be held with regard to the first three indications for this operation, McCann thinks that all agree that when the mother is moribund and the child alive an attempt should be made to save the child's life, and that this is best done by rapid Cesarean section. Eclampsia, which is associated with disproportion between the size of the child and that of the pelvis, is a further indication for this operation, as in such cases it is undoubtedly the most rapid method of effecting delivery. The surroundings of the patient and the surgical ability of those in attendance are important factors in deciding what course is best to pursue in the interests of the patient. If a patient can be removed to a well-ordered hospital or nursing home and can command the services of a competent operator the chances of her recovery will be increased, or if her apartment is clean and skilled assistance at hand the simple technic of the operation may be carried out in her own home. Should, however, the patient be in an insanitary dwelling, and no skilled surgical assistance available, her interests are best served by the adoption of expectant methods of treatment. The Cesarean operation under modern conditions is practically free from risk and is, in McCann's opinion, much to be preferred to the other methods of rapid delivery, including vaginal Cesarean section. In properly selected cases it offers the best chances of saving the life of both mother and child, although death of the fetus *in utero* is not infrequent on account of severe convulsions.

9. **Chronic Constipation Treated by Faradism of the Large Intestine.**—The treatment employed by Burroughs consists in the application to the large intestine of a faradic current of a high degree of penetration and capable of very exaggerated interruption. The method positively resolves itself into putting the abdominal and intestinal muscles through a variety of physical drill, by which they daily can gain in strength and efficiency till their restoration is positively complete. In one case cited the patient was placed in a sitting position, leaning slightly forward. Two flat leaden electrodes were adjusted next to the skin over about the middle of the ascending and descending colon respectively. A faradic current of about 9 volts, with an amperage adjusted to the requirements of the patient, was passed for 15 minutes and the current then reversed for another 15 minutes, at the end of which the first seance closed. The patient had about 30 treatments at ever-increasing intervals until the evacuations became normal in consistency and frequence.

Medical Press and Circular, London

September 7

11 *Epistaxis in Cerebrospinal Meningitis. L. Rimbaud.
12 Biliary and Intestinal Sand. G. Parker.
13 Cyst of the Broad Ligament; Operation—Recovery. S. J. Ross.
14 The Alcohol Problem as Seen in Ancient and Modern Times. T. D. Crothers.

11. **Epistaxis in Cerebrospinal Meningitis.**—During an epidemic which came under Rimbaud's observation during the past winter at the penitentiary colony at Aniane (Herault) there was epistaxis in 4 out of 12 cases. In the 3 first cases the attacks of epistaxis determined an immediate improvement of the symptoms. In the first case the bleeding took place on the second day, and was followed by a sharp fall of the temperature, and on its repetition in the evening the fever fell, the delirium ceased, and recovery was complete in a week. In the second case the epistaxis did not occur until the fifth day and recurred 3 times in the 24 hours. Here, again, there was marked and immediate improvement, with rapid subsidence of the symptoms of meningitis. Much the same thing occurred in the third case, the disease only lasting 6 days. In the fourth case the effects were not so marked and recovery was delayed for 3 months. Here, then, are 4 cases of cerebrospinal meningitis with epistaxis, in all of which the patients recovered. In this particular epidemic the mortality was comparatively low, viz., 25 per cent. In only 1 case was antimeningococcus serum employed, so that it looks as if the low mortality were due to the epistaxis. The cases may be classified as follows: Meningitis without epistaxis, 8, with 3 deaths, 37.5 per cent.; meningitis with epistaxis, 3, with no deaths.

Clinical Journal, London

September 7

15 Diseases of the Colon. W. J. Hadley.
16 *Case of Cerebral Tumor. J. A. Ormerod.
17 Value of Vaccination. F. M. Sandwith.

16. **Case of Cerebral Tumor.**—The principal points about Ormerod's case are these: The tumor was a sarcoma; its position as found at necropsy was in the right frontal lobe, where it was diagnosed during life. Yet, though it was correctly localized during life, the localizing symptoms were very scanty. The patient was operated on, i. e., the skull was trephined and the dura mater was opened. No tumor was found, but the relief was very complete for the time. However, the symptoms recurred and finally the man died. The first symptoms began in May, 1906. He was under observation on and off in the hospital for the last 11 months of his illness, and the total illness, as estimated from the first symptoms, lasted three and a half years. The first symptoms were fits of a kind called by friends "fainting fits." In these fits there were no convulsions, only loss of consciousness. They began in May, 1906, and he had about one a week for 2 or 3 months. After this he had an interval of 9 months without a fit. Then, in May, 1907, he had an attack in which he lost consciousness and fell off a ladder and hurt himself. After this he seems to have had an interval of a year without any symptoms at all.

In June, 1908, other symptoms began, namely, headache and vomiting. The vomiting, as is usual in such cases, had no relation to food. The headache was intermittent; at any rate, at first. It was said to be brought on when the patient went into a bright light. The headache and vomiting became worse, and 2 weeks before admission he had another fainting fit, which seems to have been the signal for all the symptoms to get worse. Optic neuritis was more advanced on the right side than on the left. The man had an incomplete paralysis of the left side of the face, affecting only the lower part of the face, not the orbiculis oculi nor the occipitofrontalis. This facial paralysis had a character which is peculiar and which is not often seen, that is, the paralysis was more marked in reflex muscle movements of his face than in volitional movements. About the end of January or the beginning of February he developed a transient diplopia, due to weakness of the right external rectus muscle. At this stage he began to get rather dull; he developed a certain fine tremor of his hands. His headache became persistently worse and the symptoms appeared to increase steadily, and, as antisyphilitic treatment seemed to bring about no permanent benefit, the operation was performed. At the post-mortem examination a sarcomatous tumor nearly as large as an orange was found in the right frontal region.

Journal of Tropical Medicine and Hygiene, London

September 1

18 Ankylostomiasis Fever. A. Castellani.
19 Distribution of *Necator Americanus*. A. Y. Massey.
20 Porocephaliasis in Man. L. W. Sambon.

British Journal of Children's Diseases, London

September

21 Aspects of Venereal Disease in Children. C. F. Marshall.
22 Operative Treatment of Tuberculosis Meningitis. A. J. Cleveland.
23 *Malignant Endocarditis of the Tricuspid Valve in a Child of Six Years. F. H. Hawkins.

23. **Malignant Endocarditis of the Tricuspid Valve.**—The little girl in the case reported first complained of abdominal pain, which had come on apparently rather suddenly on March 11. There had been no vomiting, and no blood had been passed by rectum; the bowels had not been moved since the onset of

the illness. The child had not suffered from any recent illness and there was no history of scarlet fever or chorea. At the time of complaining of abdominal pains she had also complained of pains in the leg. Temperature was 104.2 F.; pulse regular, but weak and rapid. The abdomen was much distended, movements with respiration were very slight, and the walls were rigid, and whenever touched she cried out, "Oh, my belly!" The percussion note was resonant. Nothing abnormal could be felt on rectal examination. On examining the chest no abnormal physical signs were detected. There was no albumin in the urine. The abdomen was opened, but beyond some meteorism and one or two small fecal masses nothing abnormal was observed. On the following day the child still complained of constant abdominal pain and cried out very frequently; the legs were now somewhat rigid and no knee-reflex could be obtained. On March 17 considerable dyspnea was present, and on percussion over the thorax the note over both bases was impaired and an area of tubular breathing was noted over the left base. The abdominal pain was still complained of and on March 18 the child's face was of a dusky color. Dyspnea was much increased and there was evidence of bronchopneumonia of both lungs. Later in the day the child died, three days after admission. No cardiac murmur was detected at any time. On opening the abdomen the stomach was found to be distended. The mesenteric glands were enlarged. There was no peritonitis, no collapse of bowel and no occlusion of the mesenteric vessels noticed. The mitral and aortic valves were normal. On the auricular surface of the middle cusp of the tricuspid valve a whitish-grey, rounded nodule, about one-eighth of an inch in diameter, was seen, which was found to be inflammatory in origin and crowded with Gram-staining micrococci. The lesion was very suggestive of an ulcerative endocarditis.

Practitioner, London

September

24 Surgical Treatment of Renal Calculus. H. Morris.
25 Vaccine Therapy. T. J. Horder.
26 Treatment and Pathology of Chronic Gastric Ulcer. C. Bolton.
27 Early Recognition of Cancer of the Uterus. F. McCann.
28 Auto-Intoxications of Epilepsy. D. M. Alexander.
29 Coli-Uria. H. M. McCrea.
30 Cases of Ataxia Due to Disease of the Cerebellum or of the Adjacent Parts. R. T. Williamson.
31 Peripheral Neuritis (Alcoholic). J. Wyllie.
32 Part Played by Colloids in Physiology and Pathology. G. A. Stephens.
33 *Certain Urinary Reactions and Their Significance in Chronic Conditions of Faulty Metabolism. H. Higgins.
34 Points Concerning Typhoid Vaccine. W. B. Leishman.

33. Certain Urinary Reactions.—According to Higgins, Joulie's reaction gives information of the power possessed by a given urine of holding calcium sucrate in solution which would be modified by one of the following conditions: (1) The presence of so large an amount of calcium that it exhausts its power of holding calcium in solution, an absence of bodies which hold it in solution, or the presence of bodies which precipitate; (2) the calcium chlorid reaction precipitates a number of bodies closely associated with calcium; (3) Jacquemet's reaction also tends to be exaggerated when there is marked hypoacidity; (4) it has been mentioned that the reduction of copper varies with the amount of calcium in the ammonium filtrate. Higgins has found the following plan useful in ascertaining the variations in the quantitative distribution of calcium magnesium in the urine [100 c.c. is preferably used for each reaction]: (1) Total calcium ammonium hydroxid is added until a precipitate forms, acetic acid is added till it dissolves, ammonium oxalate is then added. This precipitate is collected, washed, burnt with the addition of a little suphuric acid, the sulphate is then weighed and estimated by multiplying the weight found by 0.4116. (2) By dissolving the precipitate after adding ammonium hydroxid in acetic acid and adding ammonium oxalate the calcium precipitated by ammonium hydroxid can be separately weighed. By estimating the magnesium phosphate and subtracting the amount from the total of the phosphorus pentoxid in combination with the early phosphates one obtains the amount of calcium phosphate present which can be estimated as calcium so as to ascertain how much of the calcium previously estimated in the ammonium precipitate is in combination with organic acids. (4) The amount of calcium in the ammonium filtrate is obtained by subtracting the weight of the calcium in the ammonia precipitate from that of the total calcium.

Archives Générales de Chirurgie, Paris

August 25, IV, No. 8, pp. 771-880

35 Advantages of Duodenectomy for Duodenal Ulcer. Vautrin.
36 Scarlet Red Salve in Treatment of Wounds. (Pansements des plaies avec la solution de la pommade rouge R.) M. Strauss.
37 *Arteriovenous Anastomosis; 4 Cases. P. Mauclaire.

37. Arteriovenous Anastomosis.—Mauclaire reports 4 cases of senile gangrene in which he tried to remedy conditions by making an anastomosis between the femoral artery and vein. No benefit was derived in either case, the lesions being too far advanced. The reduced blood-pressure and the atheromatous state of the internal wall of the artery explain the failure of such operations for senile gangrene. To have any chances of success they should be done early.

Lyon Chirurgical, Lyons

September, IV, No. 3, pp. 225-312

38 *Operations on the Cervical Sympathetic and on the Thyroid in Exophthalmic Goiter. J. Jaboulay.
39 Operative Treatment of Chronic Urethritis. Carle.
40 *Cancer of the Body of the Pancreas. R. Leriche.

38. Operative Treatment of Exophthalmic Goiter.—Jaboulay reports 28 cases in which he resected the cervical sympathetic. Of the 23 patients surviving the operation, 5 died from intercurrent disease after great improvement and 11 have been lost to sight; 7 have been under observation for from 8 months to 12 years, and the cure has been complete except for slight tachycardia on effort. He gives the details of 2 cases in which the cure has persisted for 12 years; in one of these the sympathetic was merely stretched for a minute. He found that after partial thyroidectomy all the symptoms subsided except the enlargement of the gland, and for this he applies supplementary electric or thyroid treatment. He says that treatment should be by medical means for the exophthalmos and palpitations; if these fail, operative measures are in order. The cases in which operation on the sympathetic is indicated are the recent active forms of exophthalmic goiter and the forms without enlargement of the thyroid. Partial thyroidectomy should be preferred for the old cases and for the forms with great enlargement of the goiter and mild symptoms on the part of the eyes and heart.

40. Carcinoma of the Body of the Pancreas.—Leriche calls attention to the peculiar painfulness of these cancers and the special clinical picture as he shows by 3 case histories. Exploratory laparotomy showed that the growth was inoperable although the pain was much relieved by it. This brings to 16, he says, the number of cases on record in French literature; the youngest patient was 37. A number of the other patients were between 40 and 45. In the majority the first symptom was a sudden intense pain above the umbilicus, commencing on the left under the ribs but spreading toward the center and radiating to the back, chest and shoulder. The paroxysms occur more and more frequently, resembling the crises in tabes. In some cases, however, gastric disturbance was the first symptom and in others merely weakness and progressive cachexia. A tumor was palpable in only 9 of the cases. The patient may die without any signs of jaundice. All but 5 of the patients were men. Leriche discusses the possibility of operative treatment and the technic.

Obstétrique, Paris

August, N. S. III, No. 8, pp. 673-720

41 *Streptococcus-Carriers as Source of Puerperal Fever Epidemics in Institutions. (Quelques notions nouvelles sur les streptococcies des suites de couches.) J. Fabre and Bourret.

41. Streptococcus-Carriers in Maternities.—Fabre and Bourret have found the strains of streptococci inducing hemolysis in certain parturients never presenting puerperal complications. They also found them in some with only slight, transient fever. These comparatively healthy streptococcus-carriers may yet prove a source of contagion of other parturients in whom this strain of streptococci may induce serious

complications. They therefore urge prompt bacteriologic examination of every parturient and measures to exclude the possibility of contagion if streptococci of the hemolytic type are encountered. The blood-agar method (Lenhartz and Schottmüller) they have found the simplest and most practical means for cultivating these streptococci from the lochia.

Presse Médicale, Paris

August 31, XVIII, No. 70, pp. 657-664

42 Antihemolytic Serums and Complement-Binding. (Les sérums antihémolysants et le phénomène de Neisser et Doering.) C. Foix and H. Salin.
43 The Wassermann Reaction in Forty-eight Cases of Leprosy. D. Montesanto and D. Sotiriades.

Revue de Médecine, Paris

August, XXX, No. 8, pp. 617-696

44 Experimental and Clinical Research on the Internal Secretion of the Pancreas. E. Hédon.
45 Registration of the Auricle Pulsation within the Esophagus. (Sur la courbe de l'oreillette gauche du cœur. Son explication et la valeur diagnostique.) W. Janowski.
46 *The Rôle of the Trichocephalus in Pathology. A. Stcherbak.
47 *Lactic Acid Bacilli in Local Therapeutics and Prophylaxis. (Nouvelles applications de la bactériothérapie lactique.) A. Berthelot.
48 Disturbed Functioning of the Sweat Glands with Chronic Nephritis. (Les œdemes et les troubles de la fonction des glandes sudoripares chez les brightiques.) N. Kabanow.

46. Pathologic Importance of the Trichocephalus.—Stcherbak reviews the literature on this subject and then gives the details of a case of neurasthenia with severe gastro-intestinal disturbances, rebellious for 2 years to all treatment until the discovery of trichocephalus eggs and a course of thymol rapidly induced a complete cure. In another case, neurasthenia and anemia promptly improved under thymol treatment. In 11 other cases the trichocephalus was undoubtedly responsible for convulsions and other nervous symptoms observed and disappearing after thymol treatment. These patients were all between 19 and 26 years old except 3, aged 7, 14 and 16. The epileptiform convulsions, hemichorea, neurasthenia, cephalalgia and migraine all disappeared or essentially improved under treatment for the helminthiasis. The convulsions in some of the cases had certain hysterical traits, and he has noticed this feature also in intestinal auto-intoxication and with tape-worm. In most of the cases the patients and their families refused to admit the helminthiasis as the cause for the nervous troubles until convinced by the success of treatment. In another series of 20 cases of severe neurasthenia or epilepsy in which helminthiasis was suspected but not proved, tentative systematic thymol treatment did not benefit in the least. He gave from 0.5 to 2 or 2.5 gm. of thymol a day to adults (7½ to 37½ grains), keeping this up for several weeks or months. The drug was suspended for 5 or 6 days after taking it a week, and this intermittent method has proved effectual and harmless in his experience in hundreds of cases. The patient takes the thymol in a capsule, fasting after a purge, and drinks at once a large amount of hot tea and then does not eat for 2 hours. He gradually begins with the smallest doses to test the patient's tolerance for the drug, except in urgent cases of pseudomeningitis or appendicitis, and then he sometimes supplements it with rectal injections with 5 or 10 drops of benzin to the liter of water. He does not ascribe pathologic importance to the trichocephalus unless the eggs are found in unusual numbers. Even when this is the case, the patients may be entirely free from gastro-intestinal symptoms.

47. Lactic Acid Bacteria in Local Therapeutics.—Berthelot reports experiences confirming the conclusions of North's work in this line, summarized in these columns, April 19, 1909, page 1204.

Archiv für klinische Chirurgie, Berlin

XCII, No. 4, pp. 913-1215, Last indexed Aug. 27, p. 868

49 *Permanent Cure after Resection of the Upper Jaw for Carcinoma. (Bedeutung der operativen Behandlung des Krebses.) F. König.
50 Transpleural Operation for Subphrenic Abscesses Originating in the Pancreas. (Beitrag zu der Lehre von den Pankreasverletzungen.) S. Adler.
51 *The Thymus. (Experimentelle Studien über die Thymusdrüse nebst Bemerkungen zu der Meltzerschen intratrachealen Insufflation.) O. Nordmann.
52 *Chondrotomy for Rigid Thorax. (Chirurgische Mobilisirung des stenosirt und des dilatirt starren Thorax.) W. A. Freund.
53 *Idem. (Untersuchungen an zehn operirten Fällen von starrer Dilatation des Thorax.) R. von den Velden.
54 *Idem. (Anatomische Grundlage für die Indication der Freund'schen Thoraxoperationen.) D. v. Hansemann.
55 *Idem. (Indicationen der operativen Behandlung der starren Dilatation des Thorax und der Enge der oberen Brustapertur.) L. Mohr.
56 Cystic Formations in the Bones. (Zur Casuistik der Knochencysten.) A. Studeny.
57 Treatment of Wounds in General Practice. (Blick auf den gegenwärtigen Stand der Wundbehandlungstechnik in der Praxis.) C. Brunner.
58 *Carcinoma of the Body of the Pancreas. R. Leriche.
59 Importance of Intra-Abdominal Pressure for Treatment of Peritonitis. C. Propping.
60 *Treatment of Air Embolism. (Zur Behandlung der Luftaspiration.) P. Clairmont.
61 Peritonitis after Perforating Appendicitis. N. Kron.
62 *Local Anemia and Hyperemia by Artificially Altering the Distribution of the Blood. F. Sauerbruch.
63 *Thymectomy and Its Consequences. H. Klose.
64 Actinomycosis of the Tongue. A. P. Krymow.
65 *Exophthalmic Goiter Following Treatment of Ordinary Goiter with Iodin. (Ueber Jodbasedow.) T. Kocher.
66 Old Traumatic Luxation in the Talocrural Joint. F. Fink.
67 Suprahyoid Pharyngotomy for Removal of Growths in the Tongue, Nasopharynx, etc. (Neue Methode der totalen Exstirpation der Zunge bei Neubildungen derselben.) I. K. Spiscbarny.

49. Permanent Cure After Resection of Carcinoma of the Upper Jaw.—In the 8 cases reported the patients are in good health to date or died from other cause, 10, 18, 19, 21 and up to 26 years after the resection of the carcinoma. These are the survivors out of 48 operations of the kind; the immediate mortality was 19 and 2 died of intercurrent disease and in 2 other cases the operation was recent. The other patients all succumbed to recurrences. König believes in extremely radical operation.

51. The Thymus.—Nordmann reports experimental research on a large number of puppies in which he removed the thymus or implanted thymus tissue in other young dogs. He used an apparatus similar to Meltzer's intratracheal insufflation apparatus. The thymus was removed in the third and sixth week of life; none of the animals lived longer than a year and the entire heart was found enormously dilated, especially the right half, but there was no hypertrophy—the wall was nearly as thin as paper. He accepts the suprarenals as the antagonists of the thymus.

52-55. Chondrotomy.—Freund describes the basis for the method of mobilizing the rigid thorax which he regards as responsible for the development of morbid processes in the lungs in many cases or at least provides conditions favoring their development. Velden describes the ultimate outcome in 10 cases in which Freund's operation was performed, giving the autopsy findings in one case. He emphasizes the necessity for postoperative physical exercises to fasten and enhance the benefit derived. Hansemann discusses the indications; he restricts the operation to cases with stenosis of the superior thoracic aperture and an apical process not yet extending beyond the second or third rib. With emphysema he advises doing the operation early, and he appeals to practitioners and clinicians to give their patients the benefit of chondrotomy in time. The cure of the apical tuberculous process and emphysema is possible only when patients learn to permit surgical intervention of this kind, as for cancer, in the early stages. Mohr gives some skiagrams to illustrate the prevailing types of indications for Freund's chondrotomy.

58. See abstract 40 above.

60. Treatment of Air Embolism.—Clairmont suggests exposing the heart and aspirating the air from the right side of the heart when air has been drawn into an open vein under negative pressure. No benefit can be expected unless this is done at once, immediately after respiration has ceased, while the heart is still pulsating. It should be followed by saline infusion into the right ventricle or intravenously or by direct transfusion according to Crile, with stimulants and direct massage of the heart and artificial respiration.

62. Local Anemia and Hyperemia by Artificially Altering the Distribution of the Blood.—Sauerbruch gives an illustrated description of his method of inducing negative or positive pressure in parts of the body by a box with devices for differential pressure. The box can be applied to different parts of the body. It has proved possible thus to suck the blood from

part of the body and permit bloodless operations. He has tested the device on himself, lying for a long time in the box, but experienced no disturbances or untoward by-effects. The veins in the fundus of the eye were found engorged but the arteries did not seem to be much affected. He has applied the method in removing a carcinoma of the orbit, for a mastoid operation and for operations on the neck and hand. The benefit was particularly striking in a case of intradural traumatic intracranial hemorrhage. Under slight differential pressure the blood was all aspirated out of the soft parts and bones. Any air cabinet can be used for the purpose.

63. **Thymectomy and Its Consequences.**—Klose operated on puppies ten days old and concludes from the results observed that the thymus is a vital organ that should never be removed in young children. The symptoms following its removal are the results of an acid intoxication, presumably from nucleinic acid, and a deficiency of lime, with resulting changes in the bones and brain. Partial removal of the thymus during its most active phase of existence or complete removal during the phase of involution did not seem to cause permanent injury. He believes that the spleen is the organ which acts vicariously for the thymus. Treatment with thymus preparations is unable to counteract the effects of thymectomy. More logical is the administration of alkalines to counteract the acid intoxication or means to stimulate production of alkalies. Harm is done by thymus treatment, as this merely increases the acid intoxication. Rational surgical treatment is by autoplastic operations.

65. **Exophthalmic Goiter Coming on During Iodid Treatment.**—Kocher thinks that excessive iodid treatment is responsible for the development of exophthalmic goiter in more cases than is generally recognized. He says that this iodin-Basedow, as he calls it, is a frequent and important form of exophthalmic goiter. Treatment should be prophylactic, removing all goiters which do not yield in a few weeks to careful treatment with iodid in small doses. Once developed, all iodid medication should be stopped and all factors avoided that might act unfavorably on the nervous system. In a case described, the thyroid weighed over 160 gm. and contained no less than 0.00368 gm. of iodin. If the other cells of the body had stored up iodin in the same way, there would have been 18.4 gm. in the body. This patient had a goiter for nearly 7 years and then applied local inunctions of an advertised mixture containing iodin. In four weeks she lost 16 pounds and the typical Basedow syndrome developed. Suspension of the drug and removal of parts of the goiter were followed by gradual recovery.

Beiträge zur klinischen Chirurgie, Tübingen

August, LXIX, No. 1, pp. 1-200

68 *The Thymus. (Klinik und Biologie der Thymusdrüse.) H. Klose and H. Vogt.

68. **The Thymus.**—This entire number of the *Beiträge* is devoted to an account of Klose's research on animals and study of clinical experiences and of the literature. The work was done in collaboration with a neurologist. Twenty pages are devoted to the bibliography on the subject, 615 articles being listed. The work is well illustrated. The main points were summarized in abstract 63 above.

Berliner klinische Wochenschrift

August 22, XLVII, No. 34, pp. 1565-1608

69 Farewell Address. (Abschiedsvorlesung.) H. Senator.
70 *Vaccination against Cholera. (Ueber die Schutzimpfung des Menschen gegen Cholera asiatica.) P. Aaser.
71 Feeding by Way of the Duodenum. (Ueber Duodenalernährung.) M. Einhorn.
72 *Sponge in Capsule as Means of Obtaining Contents from the Small Intestine. (Ein neues Verfahren den Inhalt des Dünndarms zu erhalten unter Anwendung "einer Kapsel mit einem Schwamm.") P. J. Sarnizyn.
73 Simplified Tonometer for Determining the Systolic and Diastolic Blood-Pressure. M. Bruhn-Fähraeus.
74 *Hemorrhagic Cystitis after Operations on the Rectum. S. Hadda.
75 Bacteriolysis of Tubercle Bacilli. F. Dittborn.
76 Antistreptococcus Serums. (Zur Kenntnis der Streptokokken und des Antistreptokokkenserums.) A. Marxer.
77 *Theoretical and Practical Considerations in Regard to Ehrlich's "606." E. Kromayer.
78 Transmission of Syphilis to Guinea-Pigs. (Ueber die Uebertragung der Syphilis auf das Meerschweinchen.) M. Truffi.
79 Injections of Metallic Mercury. (Einspritzungen von metallischen Quecksilber.) E. Richter.
80 The X-Rays and Stomatology. F. Davidsohn.
81 Suicide in the Past and Present. (Ueber den Selbstmord.) A. Münzer.

70. **Vaccination Against Cholera.**—Aaser reports his protective inoculation of the medical and nursing force at the Christiania isolation hospital, 31 persons in all. The vaccine was made according to the Pfeiffer-Kolle technic. The reaction was moderately severe, but was entirely over by the evening of the second day. A few patients said they had never been so sick before in their lives. The moderate fever never lasted more than twenty-four hours. Diuresis was common but no diarrhea was observed. He gives the results of determination of the bactericidal property of the blood serum as followed through several months; the serum has persisted bactericidal for over a year to date.

72. **Sponge for Obtaining Contents of Small Intestine.**—Sarnizyn experimented with various capsules but now uses a little silver capsule. A piece of sponge is placed in the silver capsule and on this a little disc of cork. The whole is then enclosed in a glutoid capsule which passes unmodified through the stomach. When the capsule reaches the small intestine the outer capsule is dissolved. The sponge then becomes impregnated with the fluid contents in the intestine; as it swells it presses the disc of cork against its open end, which is smaller in diameter than the cork. This plugs the opening completely and when the capsule is voided in the stool the sponge can be pressed without removing it from the capsule, and we thus obtain the undiluted fluids from the small intestine. He relates his experience with this procedure at Kasan, Russia, having found it extremely instructive. A glutoid rather than the silver capsule is preferable on suspicion of a stricture of the intestines.

74. **Hemorrhagic Cystitis After Operations on the Rectum.**—Hadda has been impressed with the frequency of cystitis after operations on the rectum. It occurs even when the patients have not been catheterized. At it is usually of a hemorrhagic character, he thinks it is probably the result of thrombosis in the bladder veins. In 153 operations on the rectum, 61.4 per cent. of the patients required catheterization and cystitis developed in 50 per cent. of these. It came on between the third and sixth day as a rule, and in about half the cases of this hemorrhagic cystitis the trouble began with severe hemorrhage. Postoperative cystitis developed in only 12 of 46 patients requiring catheterization in a series of 239 laparotomies in the last three years, and in none of these was the cystitis hemorrhagic.

77. **Ehrlich's "606" in Syphilis.**—Kromayer reports 27 cases. In 3 cases some of the symptoms persisted after the injection and in 5 others there has already been a recurrence. A positive Wassermann reaction became negative in only 25 per cent. of the cases. His experience confirms the rapid reabsorption of the pathologic tissue of the syphiloma and the rapid healing over of ulcerations from the stimulation of the epithelium to proliferation.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 1, XL, No. 25, pp. 785-816

82 Fibroadenoma and Cancer of the Breast. (Fibroadenom und Krebs der Brustdrüse.) F. de Quervain.

Deutsches Archiv für klinische Medizin, Leipsic

C, Nos. 1-2, pp. 1-220. Last indexed Sept. 3, p. 894

83 Importance of the Sinus Node for the Heart Rhythm. (Bedeutung des Keith-Flack'schen Knotens für den Herzrhythmus.) T. Jäger.
84 Chronically Recurring Tetanus Cured by Serotherapy. (Erfolg der spezifischen Therapie bei einem Fall von recidivierendem Tetanus.) M. Leube.
85 *Study of the Blood-Pressure during a "Carlsbad Cure." (Ueber den Einfluss von Salzlösungen auf den Blutdruck und Blutdruckmessungen während der Karlsbader Kur.) Rütter.
86 Study of the Heart Sounds and Murmurs. (Akustisch erkennbare kurze Zeitintervalle.) R. Geigel.
87 *Behavior of the Kidney in Diabetes Insipidus after Organic Brain Disease. (Ueber das Konzentrationsvermögen der Niere bei Diabetes insipidus nach organischen Hirnerkrankungen.) R. Finkelnburg.
88 *Morphologic and Other Changes in the Blood in Arseniureted Hydrogen Poisoning. (Ueber Blutveränderungen bei Vergiftung mit Arsenwasserstoff.) G. Joachim.
89 *The Course of Tuberculosis 19 Years after Systematic Tuberculin Treatment. (Ueber den Krankheitsverlauf bei vor 19 Jahren mit Tuberkulin behandelten Lungentuberkulösen.) F. Penzoldt.

90 Rarity of Tuberculosis in Bolivia. (Das Vorkommen der Lungentuberkulose in Bolivia und der Einfluss des dortigen Klimas auf zugereiste Phthisiker.) A. Treutlein.
91 *Study of Atypical (Asthenic) Pneumonia. O. Gross.
92 *Addison's Disease with Amyloid or Occlusion of the Suprarenals or Hypernephroma. (Beiträge zur Pathologie der Nebennieren.) A. Bittorf.
93 Causes of Insufficiency of Gastric Juice Secretion. (Zur Kenntnis der Entstehung des Salzsäuredefizits.) M. Castex.
94 The Morgagni-Adams-Stokes' Symptom-Complex and Its Differentiation in the Electrocardiogram. A. Hoffmann.
95 Avidity for Oxygen as Test of Regenerating Power of the Blood. (Klinische Untersuchungen über Blutregeneration. Die Methode der Sauerstoffzehrung.) P. Morawitz and S. Itami.
96 Influence on the Mechanism of Breathing of Morbid Conditions in the Respiratory and Circulatory Apparatus. (Ueber die Beeinflussung der Atemmechanik durch krankhafte Zustände des Respirations- und Kreislaufapparates.) R. Siebeck.

85. **The Blood-Pressure During Spa Treatment.**—Ritter reports the findings in regard to the blood pressure in patients taking a course of treatment at Carlsbad, and insists on the importance of keeping constant supervision over the blood-pressure during spa treatment. The blood-pressure declined systematically in all but 2 of the cases, and this decline, he thinks, is unmistakably due to the influence of the hypotonic mineral waters. This assumption is sustained by the decline in the blood-pressure observed in animals injected with solutions of salts of varying concentration, the conditions approximating those in the patients.

87. **Behavior of the Kidneys in Diabetes Insipidus Secondary to Organic Brain Disease.**—Finkelnburg reports a case of diabetes insipidus accompanying cerebral syphilis; in another it was consecutive to fracture of the base of the skull, in a third to polydipsia with epilepsy in a hard drinker; in a fourth case the diabetes insipidus followed concussion of the brain. In the 2 latter cases restriction of the intake of water restored the urinary secretion to approximately normal. The concentrating power of the kidneys did not seem to be materially impaired in these cases of primary polyuria with an organic brain affection.

88. **The Blood in Poisoning with Arseniureted Hydrogen.**—Joachim gives the details of 2 typical cases of industrial poisoning with arseniureted hydrogen. One patient had had 2 similar but milder attacks 1 and 3 years before. In both cases the olive green tint of the skin was striking; it was probably the result of the combination of anemia and jaundice. Both patients were taken suddenly with headache, chilliness, vomiting, fever, hemoglobinuria, large amounts of bile in the stool, slight enlargement and tenderness of the liver and enlargement of the spleen. The symptoms came on after working for a few hours plating lamps with a mixture containing hydrochloric acid, zinc and arsenic. The patients lay in a state of stupor for a week, but then one rapidly recovered. The other displayed more of a hemorrhagic diathesis and intercurrent typhoid the third week brought him to death's door, but he finally recovered, although convalescence was delayed by a hemorrhagic nephritis. A special feature of the blood picture was the large numbers of erythroblasts, up to 3,544 per c.mm. in the first and 43,377 in the second case.

89. **Outcome of Pulmonary Tuberculosis After Tuberculin Treatment.**—In Penzoldt's 10 cases a systematic course of tuberculin treatment was given in 1890, and he now reports the later history of the patients and urges other physicians to overhaul their old records and compare them with the ultimate outcome. In 7 of his 10 cases tubercle bacilli had been found in the sputum and in the others the unmistakable general reaction testified to the nature of their pulmonary trouble. His patients were men between 19 and 40 and 2 young women, all well-to-do and stopping in the Alps at the time of treatment, where Penzoldt himself was stopping on account of an apical process. All entirely recovered or the tuberculosis passed into a mild state permitting survival to date. One patient succumbed to an intercurrent disease after 15 years. Penzoldt's principle was to keep the dosage low to avoid reactions.

91. **Atypical Pneumonia.**—Gross reports 17 cases distinguished by their insidious and gradual onset, the severe subjective symptoms suggesting typhoid at first—absence of objective findings in the lungs for days, sputum thin, copious and hemorrhagic, inefficiency of antipneumococcus serum and epidemic character of the disease. It passed finally into the typical croupous pneumonia type and all the patients recovered.

92. **Pathology of the Suprarenals.**—Bittorf reports 2 cases of Addison's disease with amyloid of the suprarenals or obstruction and with hypernephroma in 2 others. In 4 other cases the bronze pigmentation was explained by changes in the suprarenals. In some the lesions were evidently of later date than the pigmentation and a functional disturbance had probably preceded them.

Deutsche medizinische Wochenschrift, Berlin

September 1, XXXVI, No. 35, pp. 1593-1640

97 Treatment of Tetanus. E. Graser.
98 Diagnostic Importance of Microscopic Lipoids in Urine and Sputum. F. Munk.
99 Treatment of Tuberculous Lesions with Trypsin. A. Brüning.
100 Causal Agents of Meat Poisoning. (Zur Kenntnis der Fleischvergiftungserreger.) O. Bofinger and Dieterlen.
101 Prophylaxis of Typhoid Carriers by Treatment of Convalescents with Potassium Iodid or Arsenic Trioxid. (Beeinflussung der Typhusbazillen bei Typhusrekonvaleszenten durch Kalium jodatum sowie Acidum arsenicosum.) M. Tsuzuki and K. Ishida.
102 Colon Bacillus as Saprophyte and Morbid Agent in Man. (Bacterium coli commune als Krankheitserreger und als Saprophyt beim Menschen.) L. Fejes.
103 Serodiagnosis of Syphilis. (Die Serodiagnose der Lues mittels der Porgesschen Reaktion.) M. Löwenberg.
104 Tubercle in the Medulla Oblongata. (Tuberkel im Hirnstamm mit Sektionsbefund.) N. Glerlich and M. Hirsch.
105 Operative Treatment of Diastase of the Rectus Muscles. W. Kausch.
106 *Tendon Transplantation. (Ueber Sehnenscheidenauswechslung.) A. T. K. Biesalski.

106. **Tendon Transplantation.**—Biesalski reports 3 cases in which he applied a modified technic in tendon transplantation, drawing the transplanted tendon through the tendon sheath of the muscle it is to substitute. This prevents adhesions.

Fortschritte der Medizin, Leipsic

August 25, XXVIII, No. 34, pp. 1057-1088

107 *Mineral Metabolism in Rachitis. J. A. Schabad.
108 Treatment of Syphilis. G. Hahn. Commenced in No. 33.

107. **Mineral Metabolism in Rachitis.**—Schabad summarizes here in brief the results of his researches which have been already reported in THE JOURNAL, pages 359, 810 and 893 of this volume.

Medizinische Klinik, Berlin

September 4, VI, No. 36, pp. 1395-1432

109 Modern Treatment of Fracture of the Leg. (Diaphysenfrakturen der unteren Extremitäten.) M. Wilms.
110 *Typhoid after a Gall-Stone Operation. (Beziehungen zwischen Typhus abdominalis und den Gallenwegen.) L. Arnsperger.
111 *Ehrlich's "606" in Syphilis. (Weitere Mitteilungen über die Wirkung des Ehrlichschen Arsenobenzols bei Syphilis.) K. Herxheimer and R. Schonnefeld.
112 Old Pius New Tuberculin in Treatment of Tuberculosis. H. Kehl.
113 Investigation of Sensation of Vibration in the Ear. (Zur Beziehung zwischen Hautsensibilität und Vibrationsgefühl und eine Untersuchungsmethode des Vibrationsgefühles im Ohre.) E. Fräschels.
114 Practical Importance of Wassermann Reaction in Syphilis. J. Guszman and E. Neuber.
115 Therapeutic Thermopenetration. R. Schmincke. Commenced in No. 35.
116 Bile Pigments in Sputum, Urine and Blood Serum in Pneumonia. E. Herzfeld and O. Stelger.

110. **Typhoid Fever After Gall-Stone Operations.**—Arnsperger discusses the cases in which cholecystitis appeared in the course of or soon after typhoid, and also typhoid bacillus-carriers in general. He then reports a case which can be explained only by assuming that the patient was a bacillus-carrier and auto-infection after a gall-stone operation resulted in the development of typhoid fever. She was a woman of 42, the wife of a baker, and had had typhoid 15 years before. Recurring gall-stone colic finally compelled removal of the gall-bladder and drainage of the hepatic duct. Sixteen days after the operation typhoid developed. No typhoid bacilli could be found in stool or urine when the patient was discharged. He has found records of 3 similar cases, and suggests that the possibility of the patient having been a bacillus-carrier must be borne in mind in the puzzling cases in which typhoid develops after operations on the billiary passages.

111. **Ehrlich's "606" in Syphilis.**—Herxheimer has now used "606" in treatment of 200 syphilitic patients. There has been recurrence in only one. The effects were most striking in the malignant cases. No injurious by-effects were observed in any instance.

Münchener medizinische Wochenschrift

August 30, LVII, No. 35, pp. 1817-1864

117 Pathogenesis of Septic Abortion. H. Schottmüller.
118 Inhalation of Radium Emanations in Treatment of Rheumatism. (Ersatz der sogenannten indifferenten Thermalbäder durch Inhalation ihrer Radiumemanation bei rheumatischen Krankheiten.) H. Pässler.
119 *Ehrlich's "606" in Syphilis. (Arsenobenzol bei Syphilis.) B. Spiethoff.
120 *Idem. R. Duhot.
121 *Idem. (Bietet die intravenöse Injektion von "606" besondere Gefahren?) P. Ehrlich.
122 *Morbidity in Puerperium with Early Death of the Fetus and with Syphilis in the Mother. O. Jaeger.
123 Stimulating Influence of Silver Nitrate in Form of Powder on Healing of Wounds. (Einfluss des gepulverten Argentum nitricum auf das Wachstum der Granulationen und des Epithels.) M. Baruch.
124 Increased Prevalence of Scleroma in Eastern Prussia. (Zunahme des Skleroms in Ostpreussen.) P. Gerber.
125 Photographic Registration of the Pulse. R. Ohm.
126 *Floating Capsule Test of Evacuation of Fluids in the Stomach. (Versuch einer neuen Methode zur Prüfung der Verweildauer von Flüssigkeiten im Magen.) C. Kaestle.
127 Localization of Foreign Bodies by X-Rays. (Neue Erfolge in der Bestimmung der Lage von Fremdkörpern mittels Röntgenstrahlen.) J. Gillet.

119-121. **Ehrlich's "606" in Syphilis.**—Spiethoff states that his experiences with 50 cases were all favorable although the reaction of the drug was rather severe in a number of the patients. In one case, a man of 31 with secondary syphilis, stupor and positive Wassermann reaction had an attack of convulsions resembling an epileptic seizure 4 hours after injection of 0.3 gm. of the "606," with abolition of the corneal reflex and exaggeration of the knee-jerk. There was no history of epilepsy in this case but at the age of 14 he had had a period of psychic disturbances similar to the stupor observed before the injection. Spiethoff had a similar experience with a psychosis developing in a patient during a course of treatment with arsacetin—in these cases the brain was evidently the point of less resistance. In 2 cases he observed sudden total blindness for a few minutes; one in a tabetic 50 hours after the injection of the "606." In the second case an otherwise healthy syphilitic reported sudden blindness in the right eye and ptosis of the lid, the whole lasting for 10 minutes and coming on 8 weeks after the injection. In a few other cases scotoma was noted on the day of the injection. But in all these cases the eye disturbances were briefly transient and never alarming. Tachycardia was also observed in a few cases but subsided if the patients lay down. The treatment had an unfavorable action in the case of an anemic woman of 28, who was very poorly nourished, and had tertiary lesions in the throat. Three years before she had been treated with atoxyl for the same lesions. An injection of 0.5 gm. of the "606" was made in the afternoon, followed in the evening with 0.01 gm. of morphin. The patient was found dead in bed the next morning. Autopsy showed cicatricial stenosis of the throat and healed gummas in the liver, with hypoplasia of the heart and aorta, but no signs of arsenic intoxication could be detected. Ehrlich attributes the death in this case to shock from the local painfulness at the site of injection. Duhot reports an experience similar to that of Taege's, summarized in these columns September 24, page 1154. The infant was transformed under the influence of "606" taken by the mother nursing it. Ehrlich discusses the mode of application of the "606," stating that he has records of 300 cases in which it was given intravenously, while in the 3 fatalities of which he knows the route was different in each case, intravenous in Grouven's case, subcutaneous and intramuscular in the others. It is possible, he adds, that first an intravenous, followed in 48 hours with an intramuscular injection, thus dividing up the amount, may prove the preferable technic.

122. **Morbidity of the Puerperium.**—Jaeger states that the experiences in 67 cases of febrile puerperium at the Kiel clinic for women show that syphilitic parturients are particularly liable to infection. Consequently internal examination and other interfering measures should be systematically avoided for them. In 28 of the 50 women in this class there were no signs of syphilis on the external genitals, but the Wassermann test was positive.

126. **Floating Capsule Test of the Motor Functioning of the Stomach.**—Kaestle has the patients swallow 3 capsules, hardened so that they do not dissolve in the stomach, and filled with bismuth. They float on the surface of the fluid in the stomach and under fluoroscopic examination they can be seen descending as the fluids pass out of the stomach. He found that a glass of water did not entirely pass out of the stomach under 110 minutes, and a glass of warm milk under 2½ hours; the same amount of cocoa required 2¾ to 2 hours and 55 minutes, tea sweetened but without milk passed out of the stomach in 1½ hours. His tests were made on healthy persons of both sexes.

Wiener klinische Wochenschrift, Vienna

September 1, XXIII, No. 35, pp. 1249-1278

128 Recovery after Impalement. (Kasuistische Mitteilungen über Pfählung.) F. R. v. Winiwarter.
129 The Respiration Quotient in Typhoid. (Vergleichende Betrachtungen der Respirations-Quotienten verletzter Pflanzen und Typhuskranker.) K. Stich.
130 Thermopenetration. (Weitere Mitteilungen über Thermopenetration.) E. Eitner.

Zentralblatt für Chirurgie, Leipsic

September 3, XXXVII, No. 36, pp. 1185-1216

131 Multiple Hydatid Cysts in the Abdominal Cavity. (Entstehung des multiplen hydatidosen Echinokokkus der Bauchhöhle durch Keimaussaat.) F. Oehlecker.
132 Resection of Posterior Spinal Roots. (Zur Technik der Foerster'schen Operation.) N. Guleke.

Zentralblatt für Gynäkologie, Leipsic

September 3, XXXIV, No. 36, pp. 1185-1208

133 *Decapsulation of the Kidneys in Eclampsia. (Zur Nierendekapsulation bei Eklampsie.) J. Gobbet.

133. **Decapsulation of the Kidney in Eclampsia.**—Gobiet reports 2 cases in which he did decapsulation of both kidneys. The first patient was a iv-para and no benefit was derived from the operation; the kidneys showed acute hemorrhagic nephritis. The other patient was a i-para and there were no further convulsions after the decapsulation, which seemed to restore normal fuctioning on the part of the kidneys. When the changes in the kidneys are exceptionally severe, even this intervention is liable to fail, he regretfully remarks.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 23, XXXI, No. 101, pp. 1065-1072

134 Differentiation of Gall-Stones and Kidney Stones by the X-Rays. (Röntgendiagnosi differenziale tra calcolosi renale e calcolosi biliare.) V. Maragliano.

August 25, No. 102, pp. 1073-1080

135 Acute Gasoline Poisoning with Recovery. (Avvelenamento acuto da petrolio.) G. Porrini.

August 28, No. 103, pp. 1081-1096

136 Infection with *Bacillus subtilis* Simulating Miliary Tuberculosis. P. Barabaschi.

August 30, No. 104, pp. 1097-1104

137 Disturbances from Prostatic Enlargement. (Considerazioni sul prostatismo e sui provvedimenti d'urgenza ai quali da luogo.) N. Federici.

Policlinico, Rome

September 4, XVII, No. 36, pp. 1123-1154

138 Infantilism. S. de Sanctis. Commenced in No. 35.

Hygiea, Stockholm

August, LXXII, No. 8, pp. 785-912

139 *Prophylaxis and Treatment of Curvature of the Spine in School Children. (Om ryggradskrökningarna i en folkskola och om möjligheten att anordna tillfredsställande behandling för dessamma.) P. Haglund.
140 Treatment of Placenta Prævia. J. Olow.

139. **Curvature of the Spine in Children.**—Haglund makes an impressive plea for the earlier detection and proper treatment of scoliosis in children. He found in examining the 1,600 children in a certain public school at Stockholm that 25 of the children had scoliosis to such an extent as imperatively to require specialist orthopedic treatment and that 86 others also needed it greatly; 158 others needed it but not so imperatively, and 85 others displayed a tendency to curvature of the spine but were scarcely in need of specialist measures. A more or less pronounced tendency to scoliosis was thus evi-

dent in 354 of the 1,599 children, and the boys were slightly in the majority. He gives illustrations of the various types of curvature encountered, discussing the causes and urging more active prophylaxis. The ideal would be, he says, to have a medical man or woman connected with each school—giving up private practice—to take charge of the physical training of the pupils and gymnastic exercises and diagnose incipient curvature. There should also be an orthopedic policlinic to which those requiring special orthopedic treatment but unable to pay for it should be referred. Or, perhaps better yet, every medical student should be given training in orthopedics as part of his regular course. Physicians then would appreciate better, he says, the important matters of physical training, prevention, diagnosis and care of deformities and the necessity for and technic of orthopedic treatment.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXI, No. 9, pp. 889-1010

141 *Mode and Causes of Death in Diabetes. (Studier over dødsmaader og dødsaarsager.) O. Hanssen.
142 *Mode and Causes of Death after Lumbar Puncture. O. Hanssen.
143 *Mode and Causes of Death with Acute Dilatation of the Stomach. O. Hanssen.
144 Purin Metabolism and Elimination in the Urine in Chronic Rheumatism. B. Malling and O. Hanssen.
145 Metabolism of Iron with Pernicious Anemia. (Et bidrag till kjenskabet om jernets stofvekvel ved anæmia perniciosa.) P. W. K. Bøckman and O. Hanssen.
146 Study of Three Cases of Tuberculous Pericarditis. (Perikardiocentese med trykmaaling. Pulsus paradoxus. Isoleret tuberkulös perikardit i høi alder.) O. Hanssen.
147 *Digitalis-Camphor in Treatment of Pneumonia. A. W. Schiander.
148 *Rapid Determination of Albumin Content in the Urine. (Hurtigbestemmelser af eggehvidemængden i urin.) N. B. Koppang.

141. **Causes of Death in Diabetes.**—Hanssen states that of the 33 diabetics dying at the Rigshospital at Christiania in the last 20 years the fatal coma developed once each after pneumonia, the excitement of a journey, diarrhea, alveolar periostitis or rhinitis, twice during otitis media, three times after abrupt changes in the diet and once, in a patient free from sugar at the time, after a diagnostic injection of tuberculin. In 13 of the 23 patients examined post mortem no traces of tuberculosis could be detected and no clinical evidences of tuberculosis had been noted during life in the 10 other cases that did not come to autopsy. In only 9 of the total number of cases were signs of gross disease found post mortem; in this group was a patient with acute dilatation of the stomach, another with edema of the larynx, another with perforation peritonitis and 4 with a combination of pulmonary and heart disease. Seven of the 24 patients dying in coma were between 10 and 20 years old, 7 between 20 and 30, and the others between 30 and 70.

142. **Sudden Death After Lumbar Puncture.**—Hanssen states that there are about 30 cases on record of fatalities soon after lumbar puncture. Autopsy generally reveals excessive pressure on the brain from accumulated fluid and more or less obstruction of the communication between the fluid in the skull and in the spinal canal. In a case he reports, fatal paralysis of the respiration came on 6 hours after the puncture, done to relieve severe intracranial trouble. The heart action remained regular for nearly 20 minutes after the patient had ceased to breathe. In another case evacuation of pus from a cerebellar abscess was followed by similar arrest of the respiration while the heart continued to beat for 15 minutes. In another case, a few hours after a lumbar puncture an operation was done for sinus phlebitis in a boy 5 years old. As the wound was being dressed after the operation the child stopped breathing but under artificial respiration the heart continued to beat for 55 minutes longer. Alcoholism seems, he says, to favor the development of serous meningitis and this should warn against lumbar puncture in hard drinkers. Grøndahl has recently reported an instructive case of this kind; a sailor who was found later to have had a cyst in the membranous roof of one of the ventricles of the brain developed signs of severe pressure on the brain after drinking some liquor and was found dead in bed the next morning.

143. **Acute Dilatation of the Stomach.**—Hanssen discusses eleven cases of fatal acute enlargement of the stomach observed at the Christiania Rigshospital, and calls attention to the danger of its occurrence with deformities and fractures of the spine; he says that in several cases on record it has followed the application of a correcting corset. In 5 of his cases the enlargement of the stomach was a terminal phenomenon in constitutional disease, but in another case the acute and promptly fatal enlargement occurred in a healthy boy of 15 who swallowed his dinner hastily and hurried back to his employer over a mile away. Notwithstanding lavage and incision of the stomach, releasing explosively the air which was ballooning it, the patient died the next day. The evidence seems to be in favor of the dilatation being due to paralysis; collapse, vomiting and oliguria are the main symptoms. There was no dilatation of the abdomen in six of his eleven cases; the stomach contained from 1 to 8 liters of fluid.

147. **Digitalis and Camphor in Treatment of Pneumonia.**—Schiander states that 7 died of the 25 patients treated according to Quisling's method of combining digitalis and camphor. The mortality was thus 28 per cent., but he adds that the results might be better in private practice.

148. **Determination of Albumin in Urine.**—Koppang reports comparative tests with various methods and technics, his conclusions being most favorable to Aufrecht's method of centrifugating the urine, mixing with 4 c.c. of urine 3 c.c. of an aqueous solution of 1.5 per cent. picric acid and 3 per cent. citric acid. The results, he says, are reliable while the method is simple, rapid and practical and can be applied to any organic fluids and also for determination of propeptones in urine after filtering out the albumin, cooling and centrifugating anew.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A MANUAL OF TOXICOLOGY. A Concise Presentation of the Principal Facts Relating to Poisons, with Detailed Directions for the Treatment of Poisoning. Also a Table of Doses of the Principal and Many New Remedies. By Albert H. Brundage, M.D., Professor of Toxicology and Physiology in the Department of Medicines, Dentistry and Pharmacy of Marquette University. Seventh Edition. Price, $1.50. Pp. 428, with illustrations. Brooklyn: The Henry Harrison Co., 1910.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID: A Manual of Instruction. Industrial Edition. By Major Charles Lynch, Medical Corps, United States Army and First Lieutenant M. J. Shields, Medical Reserve Corps, United States Army. Prepared for and endorsed by the American Red Cross. Paper. Price, 50 cents net. Pp. 175, with 49 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

CYSTOSCOPY AS ADJUVANT IN SURGERY. With an Atlas of Cystoscopic Views and Concomitant Text for Physicians and Students. By Staff-Surgeon Dr. O. Rumpel, Lecturer in Surgery at the University of Berlin. Only authorized English translation by P. W. Shedd, M.D., New York. Half leather. Price, $8.50. Pp. 131, with 107 illustrations. New York: Rebman Co., (1910).

PALUDISM. Being the Transactions of the Committee for the Study of Malaria in India. Edited by Major S. P. James, M.D., Secretary to the Committee. Issued, under the authority of the government of India, by the Sanitary Commissioner with the Government of India, Simla. Paper. Pp. 53, with illustrations. 1910.

SYMPTOMATIC AND REGIONAL THERAPEUTICS. By George Howard Hoxie, M.D., Professor of Internal Medicine and Dean of the Clinical Department in the School of Medicine of the University of Kansas. Cloth. Price, $4. Pp. 499, with 58 illustrations. New York: D. Appleton & Co., 1910.

EUTHENICS. THE SCIENCE OF CONTROLLABLE ENVIRONMENT. A Plea for Better Living Conditions as a First Step Toward Higher Human Efficiency. By Ellen H. Richards, author of Cost of Living Series, etc. Cloth. Price, $1 net. Pp. 162. Boston: Whitcomb & Barrows, 1910.

DARWINISM AND HUMAN LIFE. The South African Lectures for 1910. By J. Arthur Thomson, M.A., Regius Professor of Natural History in the University of Aberdeen. Cloth. Price, $1.50, net. Pp. 237. New York: Henry Holt & Co., 1910.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY. At the One Hundred and Nineteenth Anniversary Held at Concord, May 12 and 13, 1910. Cloth. Pp. 333, with illustrations. 1910.

THE PITTSBURG TUBERCULOSIS LEAGUE SCHEME: What it is and what it does. Paper. Pp. 33, with illustrations. Pittsburg: Tuberculosis League.

MEDICAL COMMUNICATIONS OF THE MASSACHUSETTS MEDICAL SOCIETY. Vol. XXI. No. 3, 1910. Paper. Pp. 102. (E. H. Brigham, M.D., librarian Mass. Med. Soc., 8 The Fenway, Boston.)